A REGIONAL APPROACH TO THE GEOGRAPHICAL STUDY OF LAND DRAINAGE ENTERPRISES IN CHAMPAIGN COUNTY, ILLINOIS

BY

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B.S. Education, Ball State Teachers College, 1949

THESIS

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY GEORGE F. BEATTY

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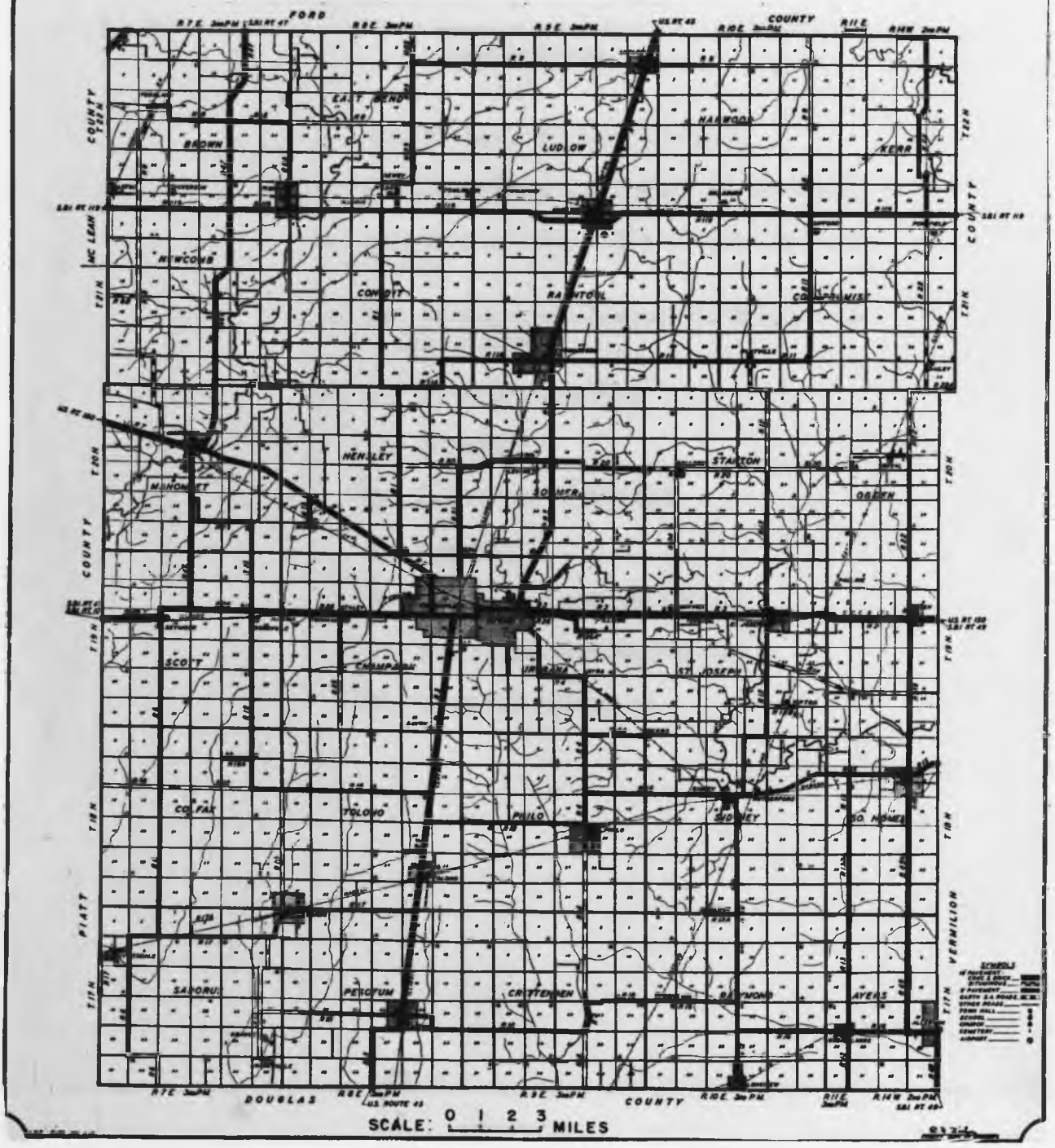

CHAPTER I

INTRODUCTION

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CHAPTER I

INTRODUCTION

Significance of Land Drainage

Land drainage has been one of the principal factors in increasing the natural wealth of our country. Productive soil is considered one of the most valuable of all natural resources, and the drainage and irrigation of large areas of land has accounted for many millions of acres of this productive soil. Large proportions of these areas were practically worthless previous to drainage.

Drainage of agricultural land is very important in Illinois where over 85%[1] of the total area of the state is in farmland. It is particularly significant in the Grand Prairie region characterized by rich, dark-colored prairie soils and by such factors of regional unity as similar land use and like culture. Further its significance to Champaign County is stressed by the fact that approximately 83%[2] of the area of the county is artificially drained. This artificially drained land represents nearly the same area of swamp land existing in Champaign County before extensive settlement began and could not have been cultivated if it were not for the present system of draining off of the excess water.

Objectives and Methods of the Study

Various studies have been made of the engineering and legal aspects of artificial land drainage. The field of economics has also studied drainage as

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[1] This figure was derived from farmland data in Census of Agriculture, 16th Census of the U. S. 1940, Bureau of the Census, 1942.

[2] Based on the criteria that 83% of the county is within drainage districts. There are undoubtedly many acres of land outside the drainage district areas having some form of artificial drainage.

an important factor in the economic structure of an area. However, there is a lack of written material on the significance of land drainage to man and to the region in which he lives. This should be a challenge to the geographer who is constantly studying man and his relationships to his environment.

It is the purpose of this study to present the thesis that there is a regional character to the area of study; this distinct characterization being the factor of drainage. Further it is to point out the significant features in this drainage area to determine whether or not they give the region unity or disunity. Finally, and of no less importance than the above purpose, it is to make this an applied study[1] in geography as well as a professional one.

This study may only be a beginning for further and even more significant study of drainage in the field of geography. Many factors have been left uninvestigated due in part to lack of the availability of time, finances and reliable data. Further comments on future geographical study of drainage are made at the conclusion of this thesis.

This study is divided into three phases. Phase one is a statement of the regional setting of this drainage area and a description of the cultural and natural aspects of the area. Phase two is represented by Chapters II, III and IV and is concerned with pointing out some of the significant features of this identified region. This second phase may be considered as descriptional geography. The third or final phase is an analysis of these significant features to determine whether or not the drainage area may claim its own distinct form of unity.

Data for the study were obtained from library sources, public records, public officials, University staff and interested residents in Champaign County

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[1] Preston E. James, "Formulating Objectives of Geographical Research," Annals of the Association of American Geographers, Vol. 38 (1948), p. 275. Dr. James states: "Applied geography is geography studied for objectives outside of its own domain."

and in surrounding counties. A great deal of data were gathered by field study, particularly in obtaining the data for compiling of the master drainage map. A large portion of the data was gathered from original sources, and some of the compilations of this data have been placed in the Appendix for future use thus saving many hours of duplicated research if need for this data is realized.

Regional Character of the Drainage Area

This area where artificial drainage is extremely significant may be classified as a region within a region, its characteristics reflecting the personality of the larger Grand Prairie region of which it is a part. The region of drainage is separable from this Grand Prairie region not because of a lack of any of the qualities of this larger area but rather because of the presence of a significant personality factor which sets it apart. This factor is drainage, which has been realized as an important problem in the everyday activities of the landowners in this area and perhaps more than in any other area of the state.

Figure 2 shows the delimitations of this region. The criteria used has been to include all counties having at least twenty-five per cent of their total area within drainage districts, the figure more or less being arbitrarily chosen.[1] More significant is the approximated boundary line which shows the areas of greatest concentration within the drainage enterprises. Champaign County lies in the heart of this region with a higher proportion of land within drainage enterprises than has any other county of Illinois.

The Cultural and Natural Aspects of the Area Studied

Champaign County is located in the east-central part of Illinois and in the region known to many geographers as the Grand Prairie Province, where

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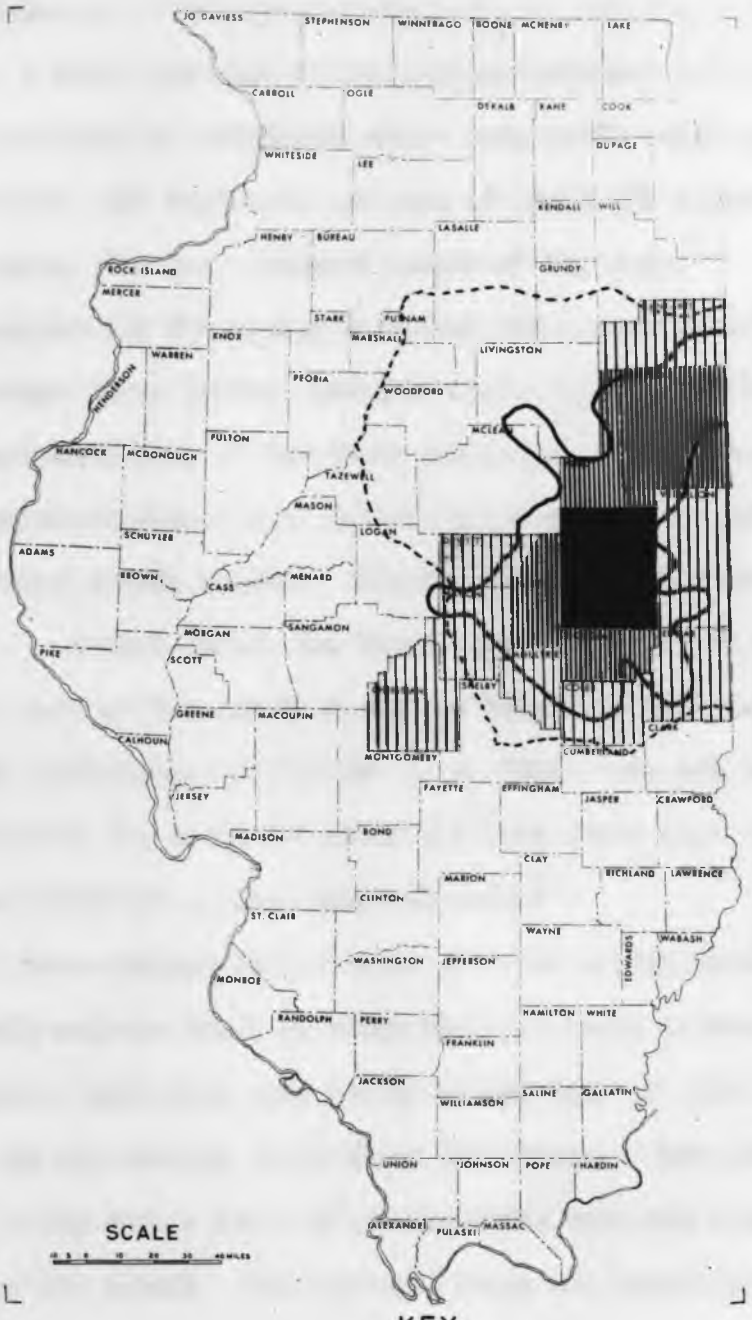
[1] Drainage of Agricultural Lands, Illinois, 16th Census of U. S. 1940, Bureau of the Census, 1942.

FIGURE 2. DRAINAGE REGION OF ILLINOIS



KEY

PER CENT OF COUNTY WITHIN DRAINAGE ENTERPRISES

- OVER 75
- 50 TO 75
- 25 TO 50

——— BOUNDARY OF DRAINAGE ENTERPRISE CONCENTRATION

- - - - - BOUNDARY OF GRAND PRAIRIE REGION

SOURCE: DRAINAGE OF AGRICULTURAL LANDS, ILLINOIS, 16TH CENSUS OF THE U.S. 1940.

grass-covered stretches of rolling prairie land and extensive swamps were developed, laying a basis for some of the richest farmland in the United States. The county is approximately thirty-six miles long north-south, and twenty-seven miles wide east-west, and represents an area of about 988 square miles or nearly 640,000 acres, the sixth largest county of Illinois.[1]

Physiographically the county is within the Bloomington Ridged Plain,[2] a part of the larger Great Central Lowlands region of the United States. Reflecting the characteristics of the above-mentioned region, Champaign County has low, broad morainic ridges with intervening stretches of relatively flat or gently undulating ground moraine. Glacial stream erosion and post-glacial stream erosion have further varied the topography. The steeper slopes are found in the northwest part of the county along the Sangamon River and in the eastern portion where the tributaries of the Vermilion River have cut deeply. The average elevation for the county is about 715 feet above mean sea level and the average relative relief is approximately 70 feet.[3]

Black to brown upland Prairie type of soils occupy about 92% of the area of the county and are found in areas that are level or have very little slope. Yellowish or yellowish-gray upland Timber type of soils comprise about 5% of the land and are usually found along the streams. The yellow to brown-colored Terrace soils occupy about 1% of the total area and are found along the larger streams of the county. Dark-colored Swamp and Bottom Land soils account

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[1]Based on figures from Census of Agriculture, 16th Census of the U.S., 1940, Bureau of the Census, 1942.

[2]M. Leighton, G. Ekblaw, and L. Horberg, Physiographic Divisions of Illinois, Report of Investigation. No. 129, State Geological Survey of Illinois, 1948, pp. 17-19.

[3]Complete Table of Relative Relief for Champaign County, Table 10 of the Appendix.

for 2% of the land in Champaign County and are found on the flood plains of the larger streams and in poorly drained low depressions.[1] Comparison of figure 3, soil types of the county, and figure 4, showing location of the pre-existing swamplands in the county, will indicate that the rich black and brown Prairie soils occupy nearly the same area as that covered with swamps. It was this previously swampy area very thickly covered with high grass, aquatic plants and harboring thousands of wild ducks and geese that has been made tillable by means of artificial drainage.

As noted in the preceding paragraph most of the land of the county was in prairie grass. It has been estimated that about 80% of the county was prairie grassland and about 20% woodland before settlement took place.[2] Settlement and consequent land clearing and improvement have led to a present ratio of about 97% land either tillable or used for pasture and only about 3% in woodland.[3]

The latitudinal position and continental location are important factors in the resulting humid continental type of climate in Champaign County. This area reflects the characteristics of the climate for the state in that it normally has rather hot summers, cool to cold winters and rather abundant precipitation throughout the year with a rather high degree of reliability from year to year.[4] The average annual temperature for the county is about 52°F, and

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[1] Champaign County Soils, Soil Report No. 18, University of Illinois Agricultural Experiment Station, Urbana, 1918, pp. 27-45.

[2] History of Champaign County, Brink, McDurough and Company, Philadelphia, 1878, p. 13.

[3] Drainage of Agricultural Lands in Illinois, 16th Census of the U. S., 1940, Bureau of the Census, 1942.

[4] John L. Page, Climate of Illinois, Bulletin No. 532, Agricultural Experiment Station, University of Illinois, Urbana, 1949, p. 109.

FIGURE 3. SOME SOIL TYPES OF CHAMPAIGN COUNTY

SCALE: 0 3 6 MILES

KEY

- UPLAND TIMBER SOILS
- UPLAND PRAIRIE SOILS
- SWAMP AND BOTTOMLAND SOILS
- TERRACE SOILS

SOURCE: BULLETIN 18, AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF ILLINOIS, 1918.

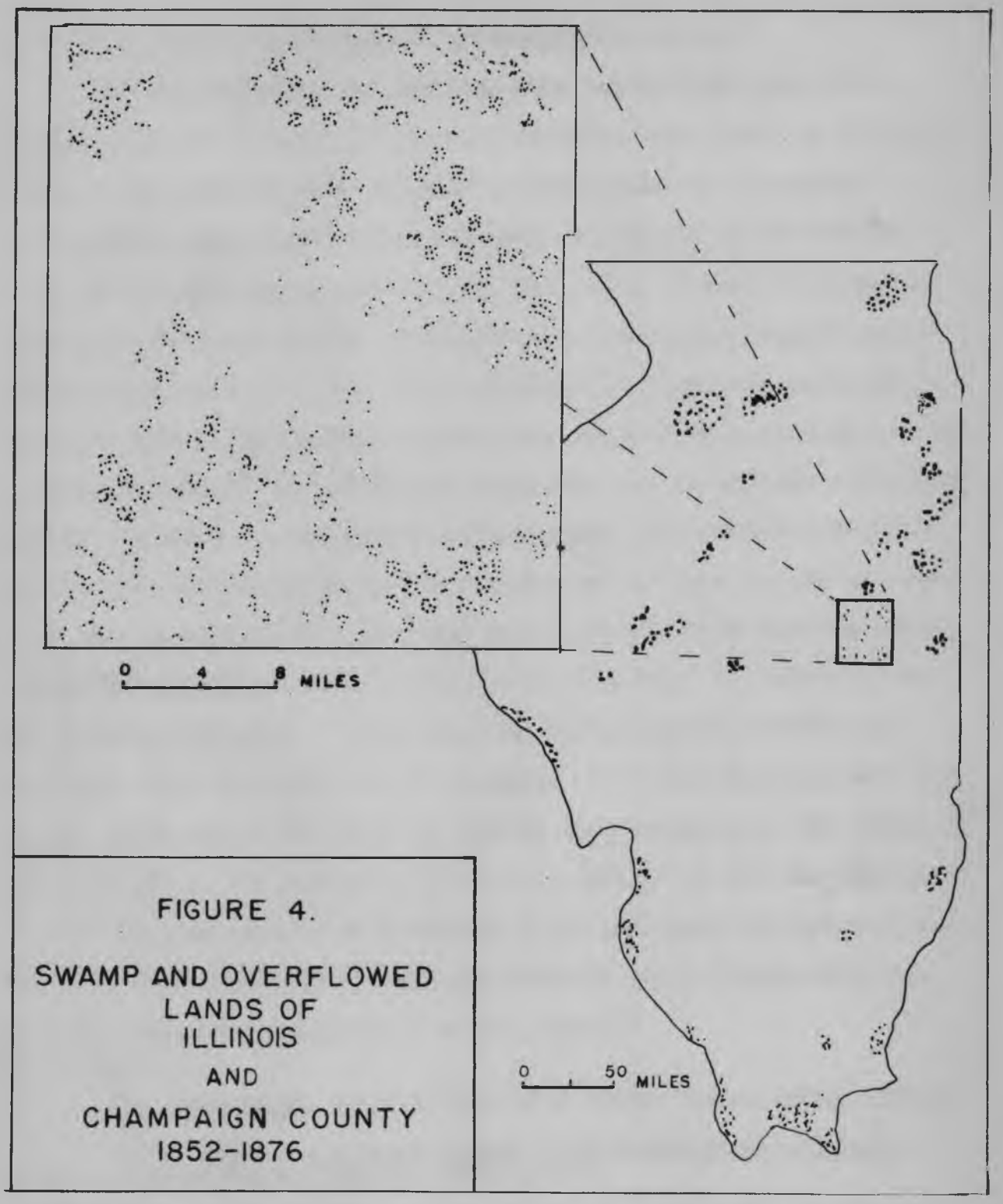

FIGURE 4.

SWAMP AND OVERFLOWED LANDS OF ILLINOIS AND CHAMPAIGN COUNTY 1852-1876

SOURCE: DRAINAGE DISTRICT ORGANIZATION AND FINANCE, ILLINOIS TAX COMMISSION, P46-48.

the average annual precipitation is approximately 36 inches.[1]

The first settlers came into Champaign County in the early 1820's, moving in from the East by the way of the old Fort Clark Road.[2] In the 1830's a tide of immigrants from the southeast settled throughout the county. As these settlers moved in the Indians, who were predominantly of the Kickapoo and Pottawattamie tribes, moved further west. These early settlers of Champaign County, like the early settlers of Illinois made their homes along the major streams where there were dense stands of timber. At first the open prairie lands intervening between these wooded tracts offered little attraction to the settlers for much of this potentially productive soil was wet and soft a large part of the year.[3] As pressure of settlement grew, the timbered land of the state rapidly diminished and necessity forced men to locate on what had seemed to be less desirable homesteads. This effect was carried to Champaign County, and by 1870 a large proportion of the 33,000 population was settled on the grasslands of the county. Aiding in making this potentially fertile land accessible were such factors as the invention of the self-polisher steel plow in 1837 which enabled the farmer to turn the black sticky soil, the opening of the railroads and the improvement of the road system. By 1900 the population of the county had risen to approximately 48,000 with about 20% living on farms. Today the total population of Champaign County is nearly 106,000 with rural residents accounting for about 40% of this number.[4]

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[1] Weather Summary, Illinois State Water Survey Weather Office, Urbana.

[2] J. R. Stewart, A Standard History of Champaign County, Illinois, Lewis Publishing Company, Chicago, 1918, p. 190.

[3] Drainage District Organization and Finance, 1879-1937, Illinois Tax Commission, State of Illinois, 1941, p. 1.

[4] Champaign-Urbana Facts, pamphlet published by Champaign Chamber of Commerce, Urbana Association of Commerce, and Campus Business Men's Association, 1950.

Paralleling the settlement movement was the development of transportation facilities in the county. Early roads were little more than marked furrows, and the pattern of travel was not in the least confined to the section lines. The roadways always followed the driest possible route, which was usually across the higher areas, irregardless of property lines. Until 1914 little grading or road improvement was accomplished. Prior to 1920 there were about 11 miles of brick pavement in the county, all in and extending out from the city of Urbana.[1] After 1921 improvement of roads began, first in the towns of the county such as Homer, Sidney and Sadorus and finally extending out into the rural areas. Today, in spite of the many difficulties of construction, paved roads are found throughout the rural areas of the county. In 1854 the Illinois Central Railroad was extended through the county, which helped to further settlement and provide the farmers and manufacturers of Champaign County with a means of moving their agricultural and industrial products to distant markets. Today there are five rail lines in the county serving both north-south and east-west traffic.

The flour mills, lumber mills, carriage and wagon shops and saddlery and harness shops of the 1870's have given way to such light industries as dairy products, contractor's supplies, athletic equipment and academic apparel. Still apparent and most predominate is the cash-grain economy of the county. The raising of grain primarily for sale, combined with the raising of livestock was recognized as important to Champaign County as early as 1877.[2] The grain sales and livestock product sales from this combination helped place Champaign County as one of the thirty-six leading counties in the United States in gross farm income for the year 1949.

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[1] Champaign County Highway Office Files, Urbana, Illinois.

[2] History of Champaign County, Brink, McDurough and Company, Philadelphia, 1878, p. 15.

During the early periods of settlement, poor transportation facilities and scattered settlements forced the people to maintain most of their activities within very limited areas most of the year. Technological and social developments, such as improvement in transportation facilities and advances in education, have helped to bring these outlying areas together into a more closely knit region. The development of drainage has had no little part in effecting this change.

CHAPTER II

DRAINAGE PAST AND PRESENT IN CHAMPAIGN COUNTY

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CHAPTER II

DRAINAGE PAST AND PRESENT IN CHAMPAIGN COUNTY

Development of Natural Drainage in Champaign County

In the early days of geological history the future Champaign County had a drainage system somewhat different from that of today. Pre-glacial drainage was developed on the late Tertiary central Illinois peneplain which had reached maturity in the erosion cycle before being glaciated.[1] This system of drainage was represented by a major valley varying from 200 to 400 feet in depth and extending across the county in a northeasterly-southeasterly direction with its tributaries; the most important tributary valley of the county extending east-west through the present Champaign-Urbana area and joining the main valley in the vicinity of Mahomet. This major valley, shown in figure 5 is known as the Mahomet-Tenys Valley,[2] and its outlet was to the west into the old Mississippi River channel.

This Mahomet-Tenys drainage system may have lost its importance as a major drainage way as the Kansan drift was deposited in the area. The diversion of drainage was not permanent, however, until after the advance and retreat of the ice in the Illinoian stage. The post Illinoian glacial surface,known as the Sangamon,was similar to that of the present in that it was a drift plain of

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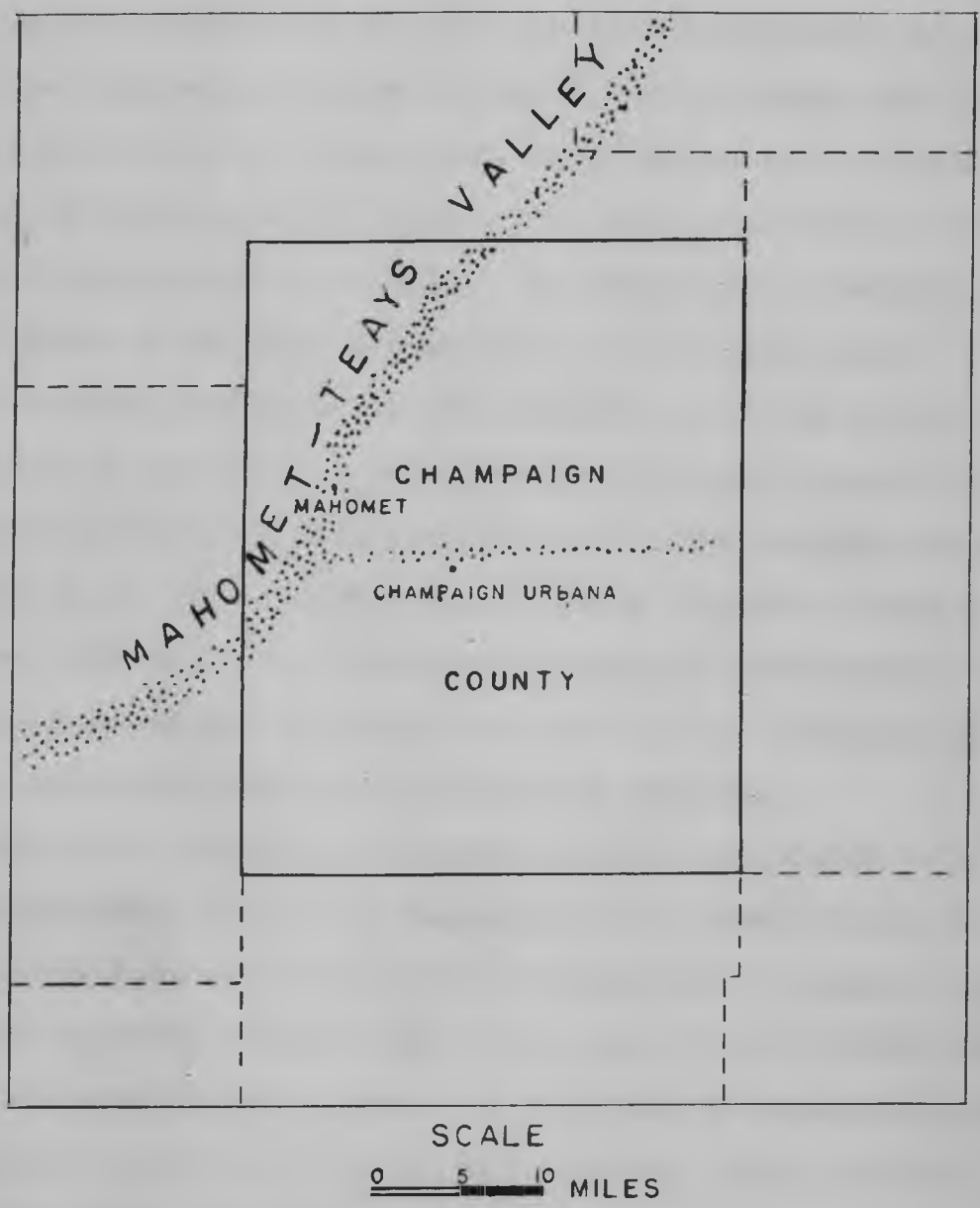
[1] Ekblaw, Pleistocene Geology of the Danville Region, Ph.D. Thesis, Geology Department, University of Illinois, 1950.

[2] Horberg, A Major Buried Valley in East-Central Illinois and Its Regional Relationships, Report of Investigation, No. 105, Illinois State Geological Survey, Urbana, 1945, p. 349.

FIGURE 5. PRE-GLACIAL DRAINAGE SYSTEM OF CHAMPAIGN COUNTY



SOURCE: AFTER HORBERG, L., "A MAJOR BURIED VALLEY IN EAST-CENTRAL ILLINOIS AND ITS REGIONAL RELATIONSHIPS," REPORT OF INVESTIGATIONS NUMBER 106, ILLINOIS STATE GEOLOGICAL SURVEY, URBANA, 1945.

low relief.[1] The regional slope and drainage of this Sangamon surface, however, was toward the Wabash Valley.

As the ice in the Wisconsin stage of glaciation advanced and retreated over the Sangamon surface, the resulting end moraines and ground moraine and associated glacial features left the area with low hummocky ridges and sag and swell surfaces lying between the end moraines.[2] The interlobate areas resulting from the varying advances of the ice lobes in the Wisconsin stage caused a diversion of the Sangamon surface drainage into three major drainage basins, the Wabash, the Illinois and the Mississippi. The terminal and recessional moraines formed the divides of the minor drainage basins of these major areas.

The resulting surface of the above-described glaciation period is the initial surface on which the erosional forces have been operating from post glacial time to the present. At present the region is in the early youthful stage of the erosion cycle. There is a well-defined dendritic pattern of the streams, the drift plain being partially dissected by the development of youthful consequent streams tributary to the main streams. There are wide expanses of undissected poorly drained interfluves remaining.

These earlier geological developments have been responsible for the present physiographical position of Champaign County in having the headwaters of three major drainage basins rise within its boundaries, as shown in figure 6. There are six important drainage basins in the county which lie within the above-mentioned major drainage basins. All lie within the greater Mississippi River Basin, whose waters empty into the Gulf of Mexico. These six basins, their principal streams and the major rivers into which they empty are shown in

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[1] Evelsnd, Pleistocene Geology of the Danville Region, Ph.D. Thesis, Geology Department, University of Illinois, 1950.

[2] Ibid., p. 20.

FIGURE 6. MAJOR DRAINAGE BASINS OF ILLINOIS

SOURCE: DRAINAGE MAP OF ILLINOIS, DIVISION OF WATERWAYS, STATE OF ILLINOIS, 1947.

figure 7. They are:

(1) The Sangamon Basin in the northwest part of the County, drained by the Sangamon River and flowing into the Illinois River.

(2) The Embarrass Basin in the southeast part of the County, drained by the Embarrass River and flowing into the Wabash River.

(3) The Little Vermilion Basin in the Southeast part of the County, drained by the Little Vermilion River and flowing into the Wabash River.

(4) The Salt Fork Basin in the east and central part of the County, drained by the Salt Fork of the Vermilion River and flowing into the Wabash River.

(5) The Kaskaskia Basin in the suthwest part of the County, drained by the Kaskaskia River and flowing into the Mississippi River.

(6) The Middle Fork Basin in the northeast part of the County, drained by the Middle Fork of the Vermilion River and flowing into the Wabash River.

Lands adjacent to these natural watercourses were adequately drained, while much of the intervening lands were covered with swamps and ponds. By 1853 there were still nearly 85,000 acres of land listed in Champaign County as swamp and subject to serious overflow,[1] representing about 13% of the total land area of the county. As has been stated previously, the early settlers preferred the timbered tracts along the streams rather than the intervening prairie land that was more often than not too wet to till. Then the pressure of settlement caused the people to seek the previously unattractive wet land in hopes that a means of draining these areas could be devised. Thus by 1880 the greater part of the accessible agricultural land had been settled and tilled, and farmers of the county and elsewhere in the state turned their fullest

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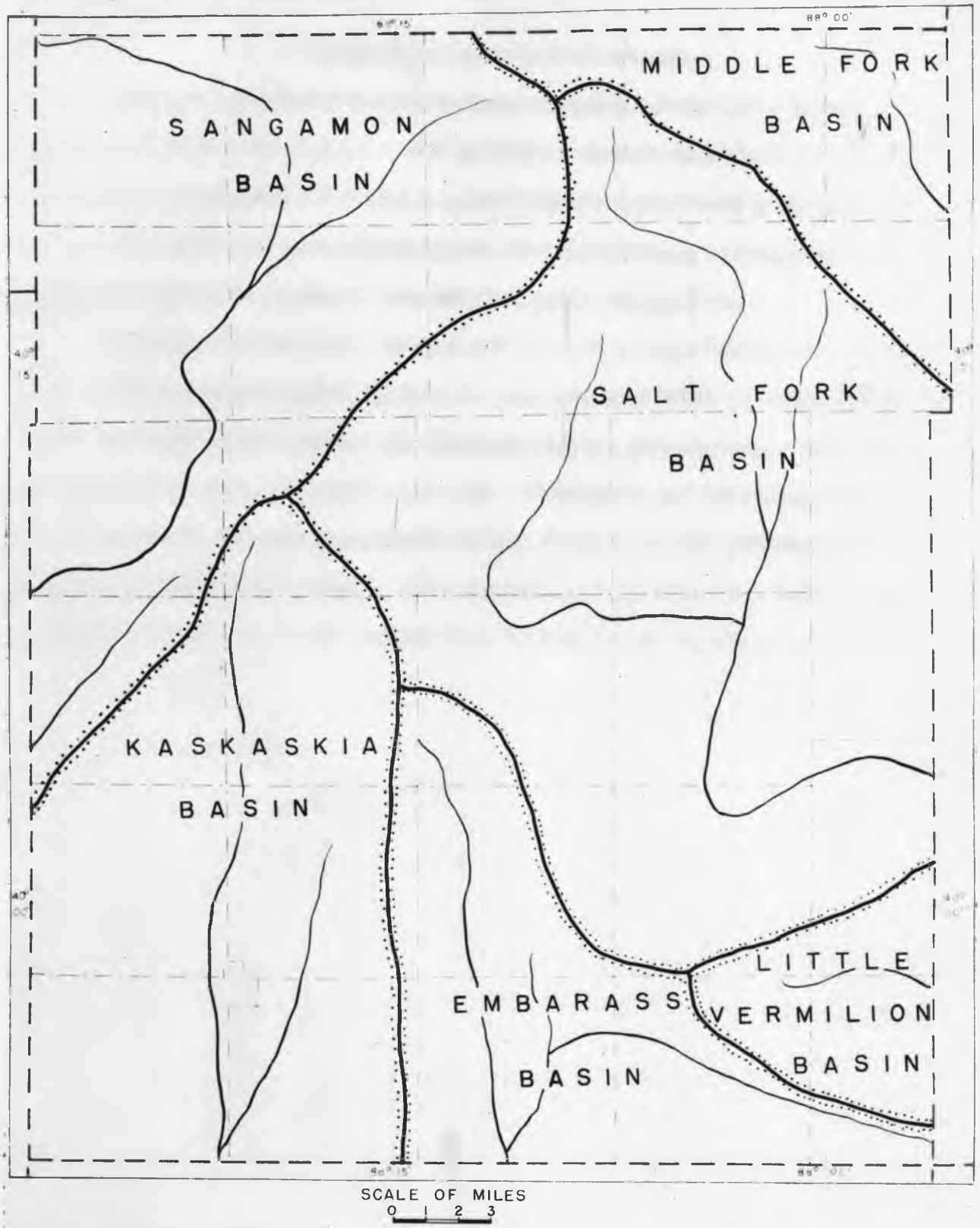
[1] J. R. Stewart, A Standard History of Champaign County, Lewis Publishing Company, Chicago, 1918, p. 366.

FIGURE 7. DRAINAGE BASINS OF CHAMPAIGN COUNTY.



SOURCE: MAP SHOWING MORAINES AND DRAINAGE BASINS OF CHAMPAIGN COUNTY, CHAMPAIGN COUNTY SOILS, BULLETIN 18, UNIVERSITY OF ILLINOIS AGRICULTURAL EXPERIMENT STATION, 1918, P.4.

attention to the improvement of the natural drainage by artificial means.

Development of Artificial Drainage

Manpower and teampower were the essentials in the early attempts at draining of agricultural land. The individual farmer undertook the task with rather crude equipment and perhaps a great lack of engineering know-how. By 1871 several miles of open ditching had been constructed and many miles of tiling had been laid by these "one-man" drainage enterprises.

Removal of the excess surface water in the early part of this reclamation period was accomplished by shallow open ditches which were dug by pulling a huge plow-like affair across the farmland with a yoke of oxen. This crude and slow method soon gave way to the use of the steam or "floating dredge" for the cleaning out and improvement of the streams and construction of new channels throughout the county. The emergence of the dragline machine, such as shown in figure 8, in the period from 1920-1930 and the later use of oil and

Figure 8
Dragline Machine Operating on the Salt Fork

Diesel machines have effected faster and more efficient drainage construction. Better engineering methods of ditch construction and laying of tile have been an equally important factor in this revolution of drainage construction and design.

Sub-surface drainage is important to relieve the land of excess sub-surface moisture which is as much a hindrance to agricultural production as is the deficiency of moisture. Early attempts of sub-surface drainage was by small covered drains. These drains were very soon replaced by more efficient drain tile, and in later years the laying of tile by hand has largely given way to the use of the tile-laying machine which is illustrated in figure 9. In the early 1890's tiling in Champaign county came from tile factories located at

Figure 9
Tile-laying Machine in Operation

Thomasboro, Savoy, Fisher, Tolono and Ivesdale which used local clay resources as raw material.[1]

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[1] Personal interview with R. F. Fisher, County Highway Superintendent, Champaign County, Urbana, Illinois.

Development and Significance of the Drainage Laws

New and better equipment and improved technology were not in themselves the prime factor in effecting a more efficient system of artificial drainage. The vastness in the size and costs of the drainage projects called for a great deal of cooperation among the landowners. Attempts in cooperation often resulted in conflicts. The only legal course of action the early settlers had to effect drainage was by rights at common law which in the State of Illinois is based on the natural drainage concept and states that "the owner of the lower land must accept the natural flow of water from the upper lands."[1] Difficulties arising from the fact that many lands had no natural channels and, therefore, were not subject to common law rule made it apparent that additional provisions must be made. This is most significant in Champaign County where, as has been previously stated, there were large tracts of relatively flat and gently undulating land. Thus it is of the utmost importance to understand some of the legislation passed in Illinois regarding land drainage.

As early as 1818 drainage projects were attempted by individuals and private companies who had obtained their charters from the state. Some of the projects of these companies and individuals were short-lived due mainly to the inability of the organizations to make assessments for operations.

One of the most important attempts in land drainage prior to the Drainage District legislation of 1879 was the effects following the passage of the Swamp Land Act by the Federal Government in 1850. Under this act the government deeded all areas of land in need of drainage to the respective states. Illinois, in turn deeded her acquired land to the counties who were then to sell the swamp land and use the proceeds for reclamation of the land. The inability

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[1] H. W. Hannah, Illinois Farm Drainage Law Manual, College of Agriculture, University of Illinois, 1950, p. 2.

of the federal, state and county officials to agree on the amount of swamp land caused delay in proceedings and was an important factor resulting in little accomplishment in the way of draining these areas. For example, in Champaign County in the year 1886, there were 22,000 acres listed as swampland by county officials. However, a representative of the Federal Land Office ruled that over one-half of that amount was dry land.[1]

Paralleling the other attempts at draining lands was the ruling of the General Assembly in 1826 which made it possible for township, county, or city to function as drainage organizations. Failure of satisfactory drainage cooperation again led to a strong sentiment for a different type of drainage organization to be established.

The Drainage and Levee Act enacted in 1871 seemed, at that time, to be adequate. However, this law as enacted was short-lived and an amendment was made to the constitution in 1878. The following year, 1879, two separate and distinct drainage laws were passed. These laws were known as (1) The Drainage and Levee Act, and (2) The Farm Drainage Act. With the exception of the re-enactment of the Farm Drainage Act in 1885, these laws with their many amendments stand as the legal guides for drainage development in Champaign County and in the State of Illinois to the present date. The drainage laws of 1879 were formulated for the primary purpose of providing for the landowners a "legal entity which could be used for adequate drainage or flood protection for the lands lying within such entity."[2]

Following the appearance of the above-stated drainage laws was the organization of a great number of drainage districts and the actual planning

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[1] Drainage District Organization and Finance, 1879-1937, Illinois Tax Commission, State of Illinois, 1941, p. 46.

[2] H. W. Hannah, Illinois Farm Drainage Law Manual, College of Agriculture, University of Illinois, 1950, p. 3.

and proper engineering of these districts.

Development of Drainage Districts in Champaign County

Although the first drainage districts in Champaign County were recorded in 1880 under the newly-enacted Levee Act and Farm Drainage Act, the first account of drainage district organization in the county was in 1865 when Big Slough and Wildcat Slough Drainage was authorized by Public Law of that year.[1] Records of the operations of this 1865 enterprise are non-existent, and so the extent of the activities are not known. Table 1 shows the name, date of organization and Act under which the first drainage districts of Champaign County were recorded.

Table 1

First Recorded Drainage Districts of Champaign County

Name of District	Date of Organization	Act of Organization
Beaver Lake	6-21-1880	Levee Act
Big Slough Special	6-8-1880	Farm Drainage Act
Mutual Dr. District of Harwood Town, Watson, Claypool, et al	10-21-1880	Farm Drainage Act
Union Dr. District No. 1 of Ogden and Oakwood Town	9-20-1880	Farm Drainage Act
St. Joseph Dr. District No. 3	1880	Farm Drainage Act
St. Joseph Dr. District No. 4	1880	Farm Drainage Act
Union Dr. District No. 2 of St. Joseph, Ogden	1880	Farm Drainage Act

Source: Table 5, Appendix.

In the period from 1880 to 1900 forty drainage districts were formed in the county, totaling approximately 200,000 acres, or about 30% of the total land area of the county. The growth of these districts by size and by number is shown by the graphs in figures 11 and 13. By 1910 the number of enterprises had almost doubled, increasing the acreage to about 413,000 acres. From 1910 until 1950 the increase in number and in total acreage of the districts has been more gradual. The total acreage of all districts (including the Urbana-Champaign Sanitary District) is now approximately 532,000 acres, or about 83% of the total area of the county. The abnormal rise in drainage districts size in 1930 and 1940 is apparently due to the use of United States Census figures for these two years, and figures from other sources as listed for the remaining years. The census enumerates as drainage enterprises many private projects not organized under statutory authority, and the other source figures are for legal enterprises only.

The earlier districts were predominantly organized under the Farm Drainage Act. In 1900 thirty-two of the thirty-seven districts had been organized under this Act. These earlier districts were also smaller than those formed after 1900. There were only eight drainage districts of 10,000 acres or over in 1900, while in 1910 there were fifteen districts of approximately 10,000 acres or more in area. At the same time the drainage districts were becoming larger the number of Levee Act districts in proportion to the Farm Drainage Act districts was also increasing. By 1910 there was a 200% increase in the number of Levee Act districts in comparison with a 63% increase in the number of Farm Drainage districts. An inducement for the earlier districts to organize under the Farm Drainage Act was the provision under this Act that it was not necessary to file papers of organization at the county seat, therefore, the landowners could effect legal proceedings within the township where their farm was located.

With a lack of good transportation facilities and the presence of smaller farms with their corresponding lesser needs of drainage development, the farmer readily took to organizing within his own community. As transportation facilities improved and the size of the farms grew larger,[1] county and intertownship cooperation was needed. Partly as a result of this change, the drainage districts increased slightly in size and more were organized under the Levee Act which also enabled them to have a better organization of filing their records. Figure 14 shows the result of a great number of smaller districts being formed early in the period from 1880 to 1950. Approximately 2% of the districts have 21,000 acres or over within their boundaries, an area less than the size of the majority of the townships of the county. The smaller district is quite often at a disadvantage compared to the larger district, for usually there are less landowners and less income so that needed, but costly, drainage projects are sometimes not undertaken.

Comparison of Champaign County's statistics with State statistics in figures 10 and 12 for the period 1920 to 1950 indicates that there is a similar trend in both state and county.[2]

Within these legally organized drainage districts of the county are many sub-districts and minor sub-districts which are organized for the purpose of the construction of tile and ditch laterals and their maintenance at specific points

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[1] In 1900 the average size of a farm in Champaign County was 146 acres, and in 1910 it was 162 acres. From U. S. Census figures for these years.

[2] The apparent discrepancies in 1940 and 1950 might be partially explained by the fact that figures on the extent of farm drainage are quite often inaccurate. Professor E. Lehmann of the Department of Agricultural Engineering, University of Illinois, states in his paper, Agricultural Drainage and Water Conservation and Use in Illinois, presented 1936, to the effect that there are no entirely accurate statistics which show the extent of farm drainage in Illinois.

FIGURE 10. DRAINAGE DISTRICT DEVELOPMENT IN ILLINOIS
BY SIZE OF DISTRICT
1920-1950

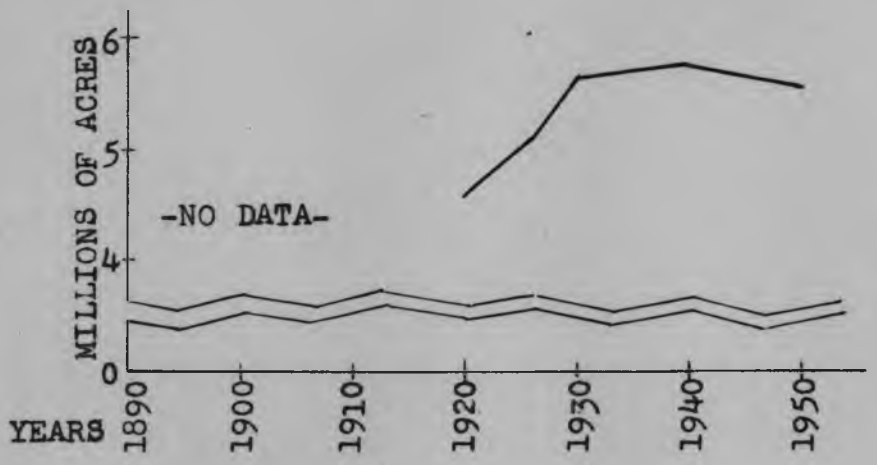
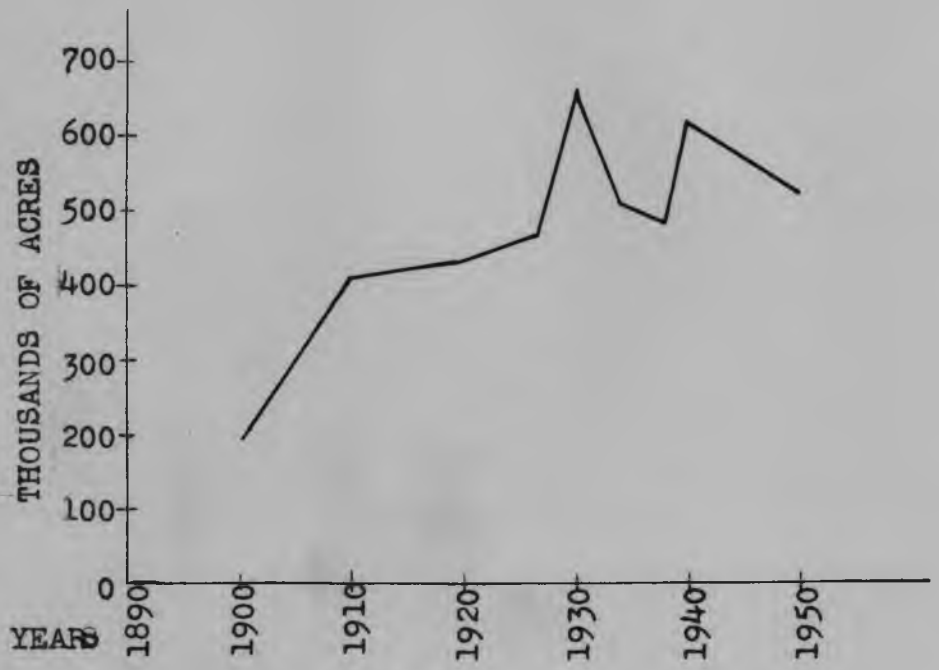


FIGURE 11. DRAINAGE DISTRICT DEVELOPMENT IN CHAMPAIGN COUNTY
BY SIZE OF DISTRICT
1900-1950



Source: Appendix. Table 5
Drainage of Agricultural Lands, Illinois, 14th, 15th and 16th Census of the United States, 1920, 1930 and 1940.
G. Pickels and F. Leonard, Engineering and Legal Aspects of Land Drainage in Illinois, Bulletin No.42, Illinois State Geological Survey, Urbana, 1929.

FIGURE 12. DEVELOPMENT OF DRAINAGE DISTRICTS IN ILLINOIS
BY NUMBER OF DISTRICTS
1920-1950

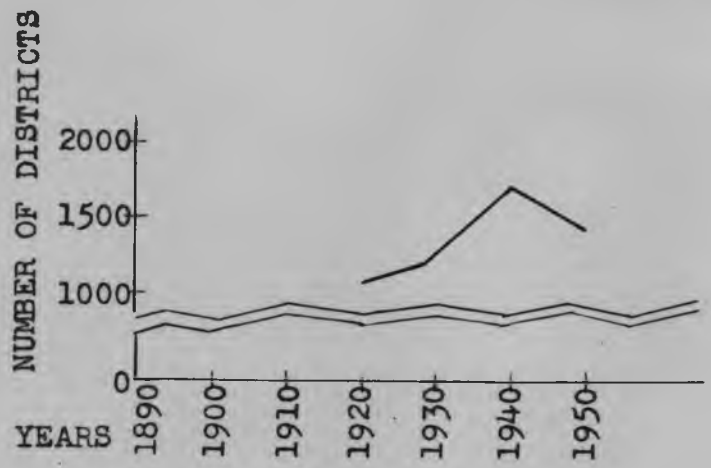
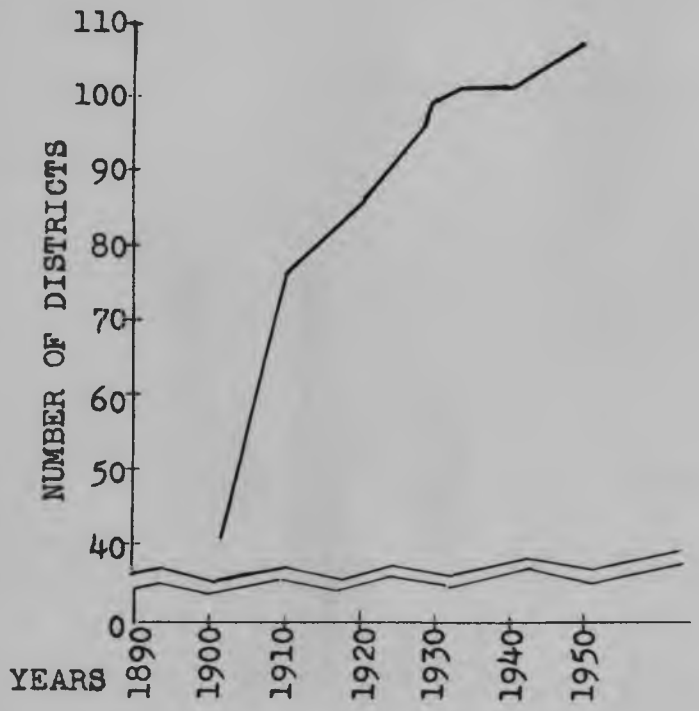


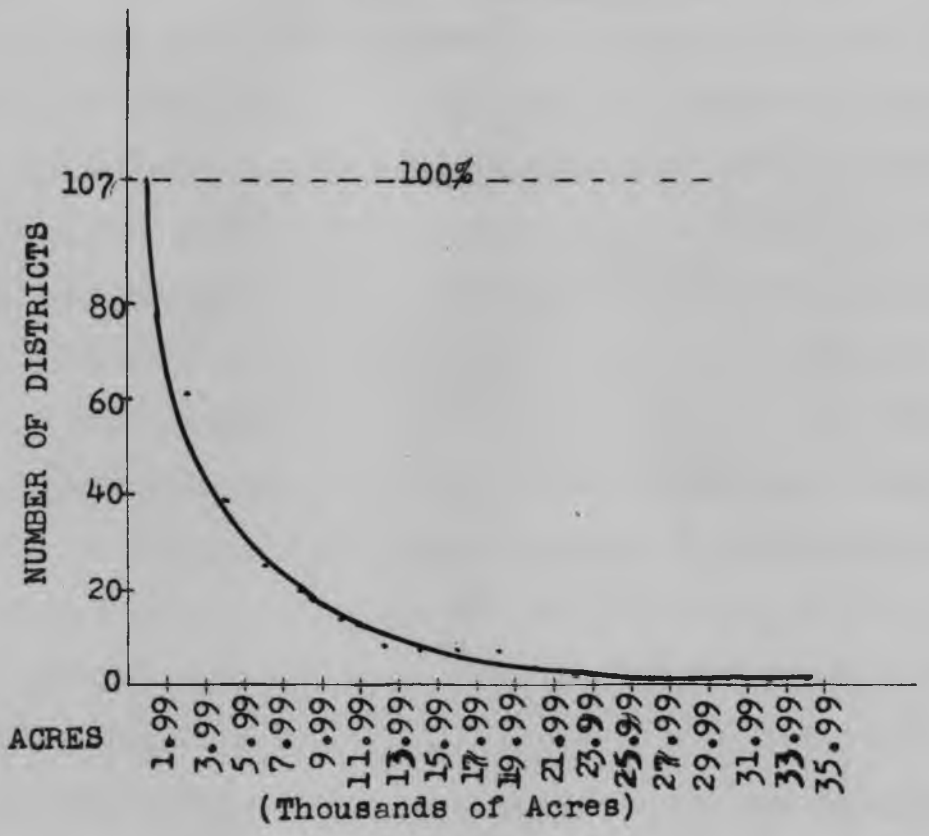
FIGURE 13. DEVELOPMENT OF DRAINAGE DISTRICTS IN CHAMPAIGN COUNTY
BY NUMBER OF DISTRICTS
1900-1950



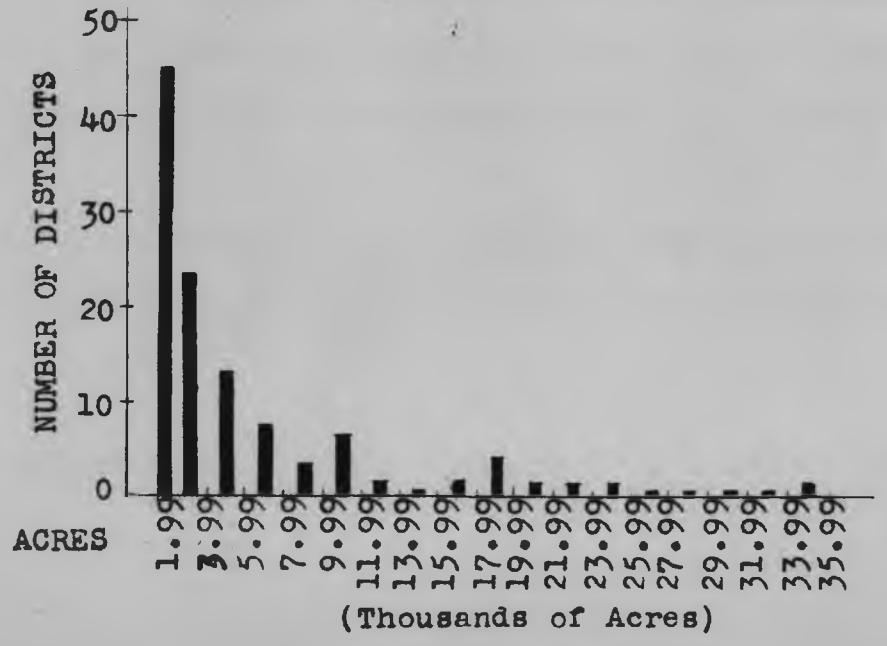
Source: Appendix. Table 5
Drainage of Agricultural Lands. Illinois, 14-15-16 Census.
G. Pickels and F. Leonard, Bulletin No. 42, Ill.Geol.Survey.

FIGURE 14. DRAINAGE DISTRICTS OF CHAMPAIGN COUNTY, 1950

CUMULATIVE CURVE PRESENTATION

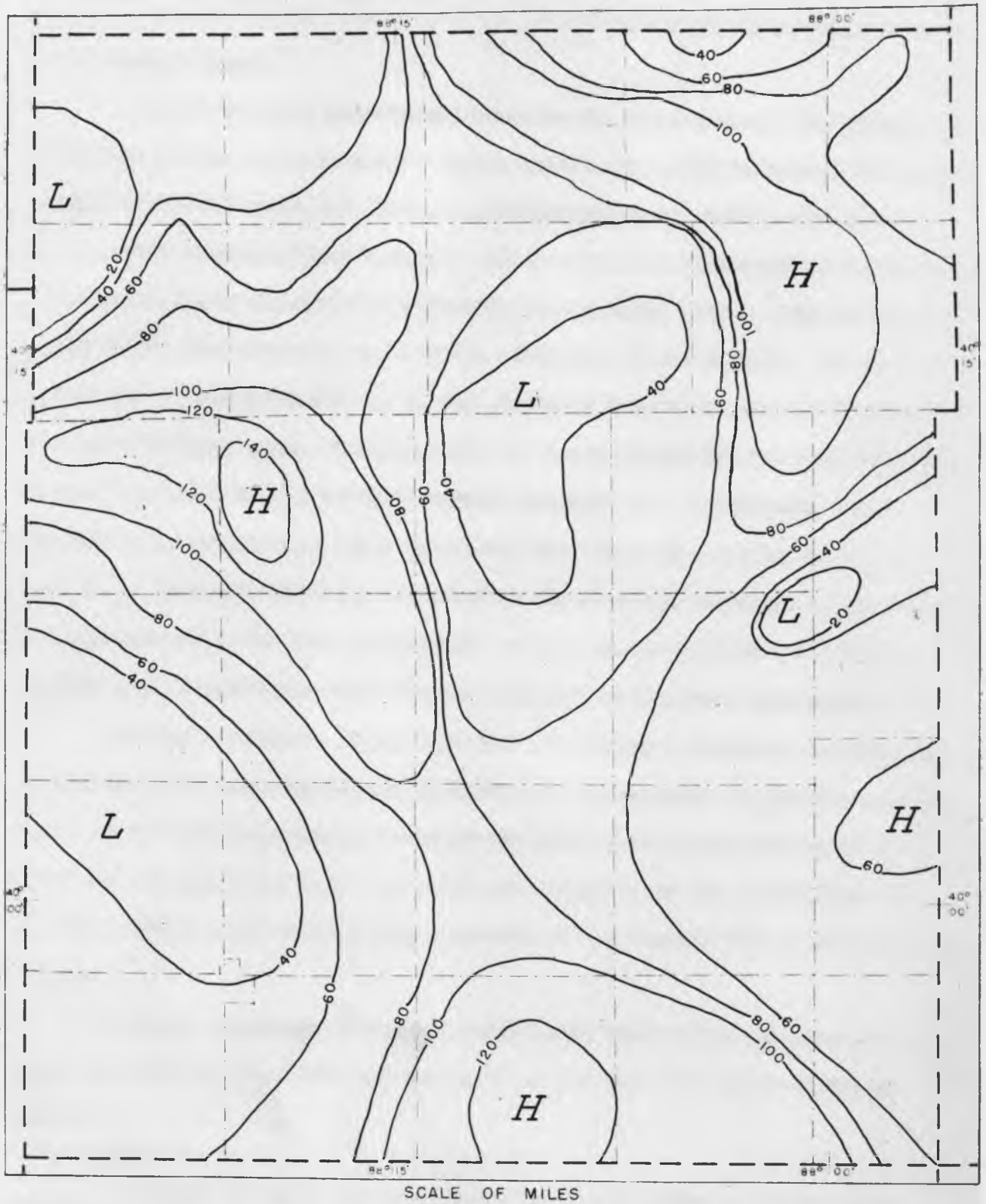


BAR GRAPH PRESENTATION



Source: Appendix. Table 5

FIGURE 18. RELATIVE RELIEF OF CHAMPAIGN COUNTY.



SCALE OF MILES
0 1 2 3

20 FOOT CONTOUR INTERVAL

SOURCE: U. S. G. S. QUADRANGLES, NOS. 118, 119, 120, 146, 147, 148; ROLFE'S CONTOUR MAP OF CHAMPAIGN COUNTY

in the district. In 1950 there were 240 sub-districts and minor sub-districts in Champaign County.[1]

One of the most significant items in the operations of the drainage districts is the costs involved. Costs include the money necessary for organization of the district, the initial construction costs and the subsequent maintenance expense of the district. These costs are collected in the form of assessments quite distinct from property and personal taxes. Assessments for costs in the districts are made by the officials of the district and are proportioned to each landowner as to the amount of benefit he will derive from the proposed drainage work. Generally the landowner living further away from the drained area and having the best natural drainage will receive the least benefit and, therefore, pay less assessment than the other landowners in the district. However, there is a trend recently to assess everyone in the district for approximately the same amount, based on the reasoning that a farm well-drained will benefit even more from an adjacent landowner's improvement.

Accumulated costs, figure 15, for the drainage districts in Champaign County now total over $5,000,000, excluding the approximate $1,500,000 paid in taxes by the Urbana-Champaign Sanitary District representing nearly 5% of the total amount spent for taxes (personal and property) in the county from 1900 to 1950. Table 2 was prepared from records of the Clerk's Office of Champaign County.

Average assessments for this period were about $9.00 per acre, or only about one-half of 1% of the average value of one acre of land in Champaign County.

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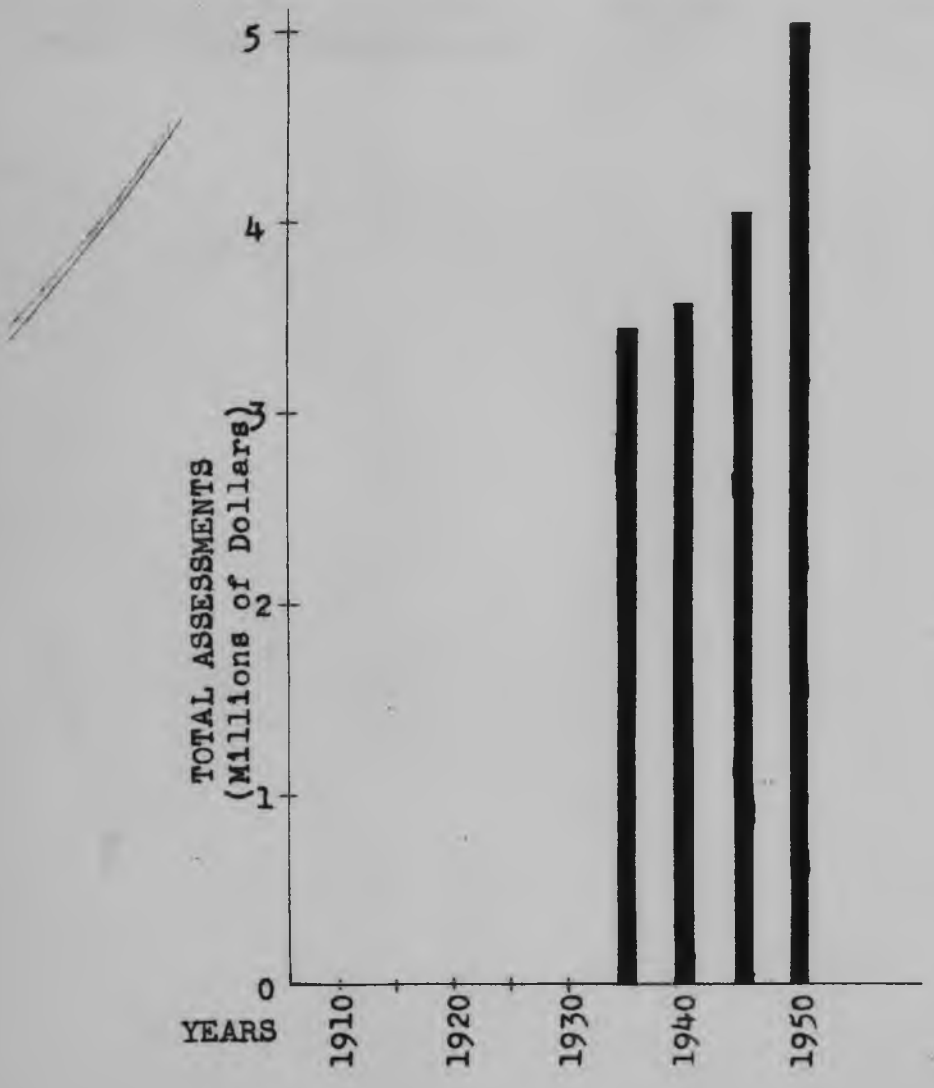
[1] Drainage District records, Champaign County Clerk's Office, Urbana, Illinois.

FIGURE 15. ACCUMULATED COSTS IN THE DRAINAGE DISTRICTS OF CHAMPAIGN COUNTY 1880-1950



Source: Appendix. Table 7

Table 2

Taxes and Drainage Assessments for Champaign County, 1880-1950

Item	Period	Amount (Accumulated)
Taxes in Champaign County	1900-1950	$103,199,200
Drainage District Assessments	1880-1950	5,009,928
Urbana-Champaign Sanitary District Taxes	1924-1950	1,684,800

Source: Tables 7 and 8, Appendix.

CHAPTER III

PHYSIOGRAPHICAL ASPECTS OF THE DRAINAGE DISTRICTS

A. Distribution in the Watershed Areas

   1. Overlap Areas of the Drainage Districts

   2. Location of the Drainage Districts

   3. Problems in Relationship to Topography

B. Construction in the Drainage Districts

   1. Open Ditch Construction

   2. The Laying of Tile

C. Significance of Rainfall

CHAPTER III

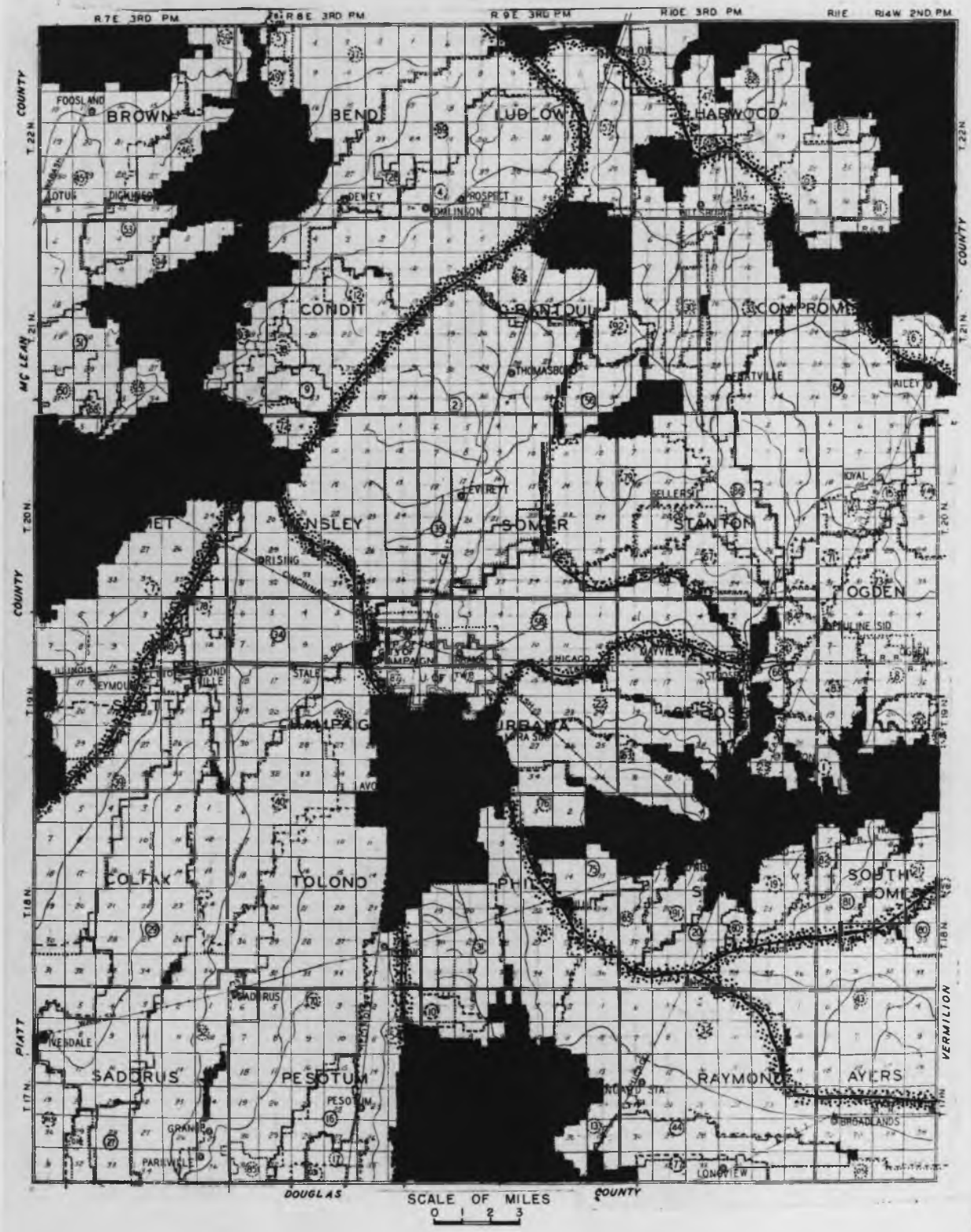
PHYSIOGRAPHICAL ASPECTS OF THE DRAINAGE DISTRICTS

Distribution in the Watershed Areas

The watersheds are delimited by natural boundaries which are sometimes well defined when the boundaries are represented by such features as the intermorainic ridges, as shown in figure 7. In some instances, however, the watershed area is not so clearly defined, particularly the smaller watershed boundaries lying in the intermorainal tracts. The drainage districts in nearly all instances are bounded by political lines usually established by the outline of the individual parcels of land. The conflict of these two varying forms of boundaries often shows up as an overlap area where the boundary of a drainage district in one watershed area extends into another watershed area. This means that the land in the first drainage district will be benefited by the natural or artificial drainage in the latter basin. If the benefit is derived from the artificial drainage system of the district, then the area is usually annexed by both districts. If, however, the drainage of the area is adequately taken care of by the natural features of the basin, no overlap will show. There are many areas along these watershed boundaries, as indicated in figure 16, that are not within a drainage district, primarily because the natural drainage is adequate.

An example of an overlap area is shown by the diagram in figure 17. A portion of Mr. Porterfield's farm lies on a watershed boundary. The map indicates that twenty-five acres lie on the divide between two natural drainage basins that include the South Fork Drainage District and the Wrisk Drainage District, while another tract of twenty acres lies on the natural boundary of

FIGURE 16. DRAINAGE DISTRICT AREA AND WATERSHED AREAS OF CHAMPAIGN COUNTY.



KEY

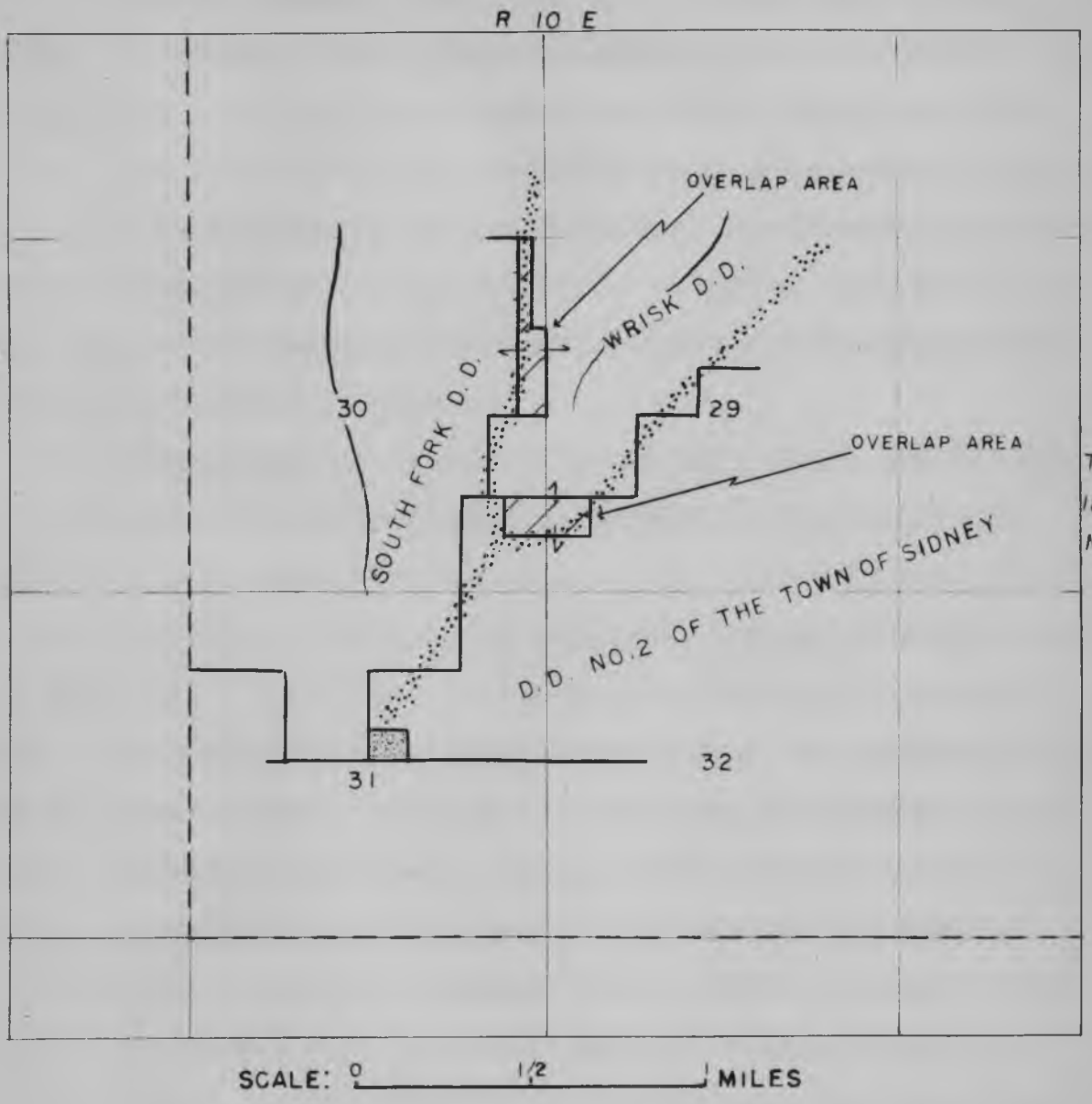
AREA NOT IN A DRAINAGE DISTRICT

WATERSHED BOUNDARY

SOURCE: APPENDIX, TABLE 5

FIGURE 17. EXAMPLE OF AN OVERLAP AREA

PORTERFIELD FARM, SIDNEY TOWNSHIP



LEGEND

DRAINAGE DISTRICT BOUNDARY

WATERSHED BOUNDARY

SOURCE: MASTER DRAINAGE DISTRICT MAP, THESIS

the basins within the areas belonging to the Wrisk district and Drainage District No. 3 of the Town of Sidney. Rather than divide the land with an irregular boundary, the drainage district lines are left according to the political lines and are included in each of the identified districts. Although assessments are made to each district for this land which causes a duplication of assessment, there is little difficulty in handling the matter. Mr. Porterfield will arrange with the drainage commissioners of each of the districts at the time of assessment to pay only the assessment on the area of land actually included within the watershed area in each district.

Two other causes of overlap area are important although their occurrence is less than the above-mentioned example. One of these is caused by two drainage districts having a common outlet. A large number of drainage districts have their outlet into a main open ditch of another district before the waters of that district are carried to a major stream of the county. These major streams of the county are located, for the most part, in areas outside of drainage districts (master drainage map), and so the waters emptying directly into them are free from benefit assessments. However, where the drainage district has an outlet into another before the waters enter this non-district area, the area at the place of outlet is claimed by both districts. An example is the outlet area of Two-Mile Slough and Okaw Drainage Districts as shown on the master drainage map. These overlaps are not common, for in most cases where one district lies above another, the upper district will be in most instances benefited by the work of the lower district, and the entire district will be charged with a benefit assessment. A good example of a district being organized primarily to alleviate these possible areas of conflict is the Upper Salt Fork Drainage District, which is a long narrow district located along the Salt Fork of the Vermilion River. The construction and maintenance work performed by

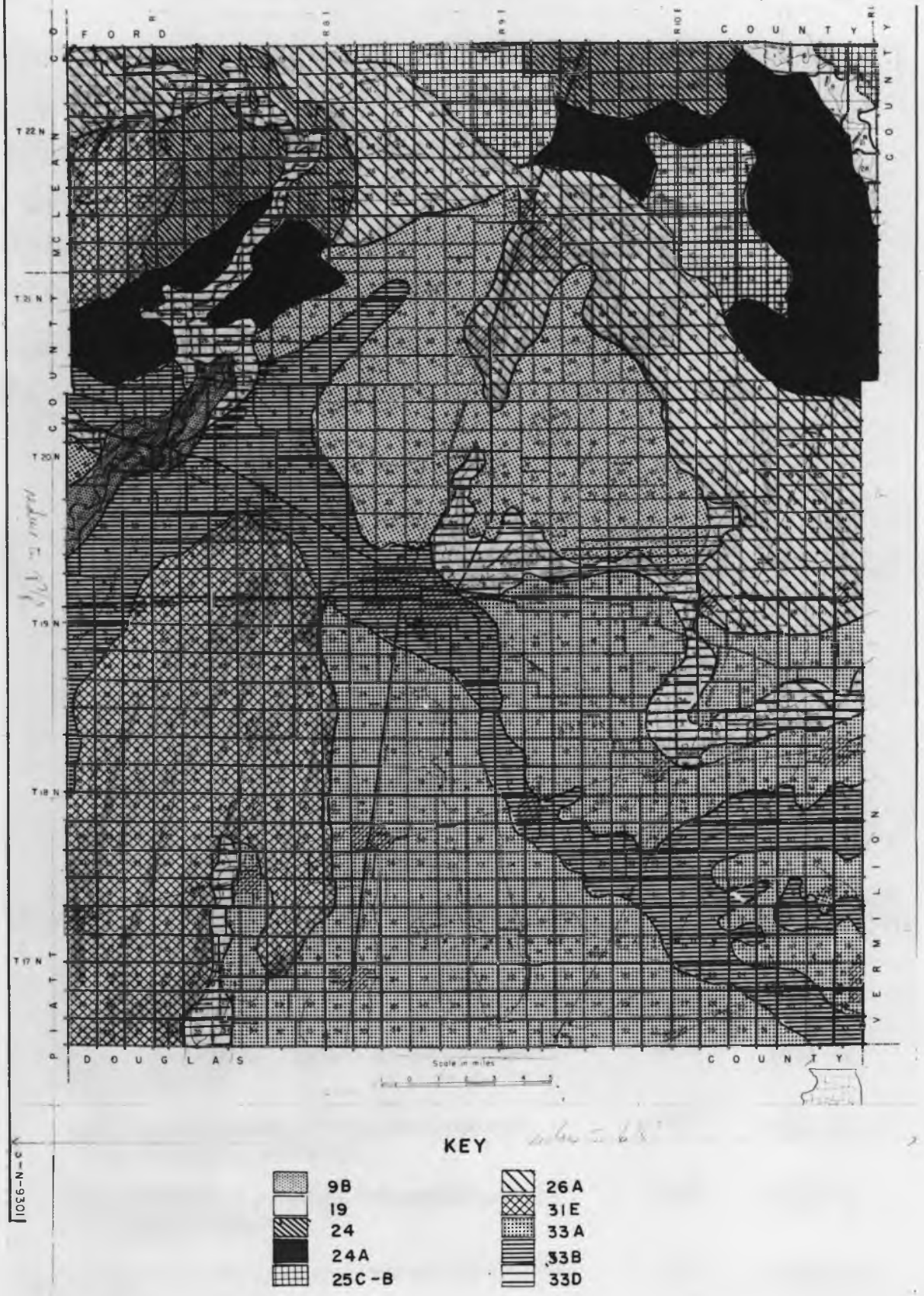
this district is mostly for the benefit of the adjacent districts which have their outlet ditches into the Salt Fork as it flows southward through the Upper Salt Fork Drainage District. This district also drains a much larger watershed area than is confined within its borders.

Another cause for overlap areas is the organization of one drainage district long after a former district had been abandoned and the location of its boundaries uncertain. This usually happens when the older district was laid out in a not-too-well-planned manner and the boundary lines were not engineered properly. The new district which is usually engineered more efficiently then finds its boundaries overlapping the pre-existing lines.

As might be expected, the drainage districts are largely organized in the areas with poorly drained surfaces lying away from the major streams and within the major basins of the county. Examination of the relief map of the county, figure 18, indicates that the "Highs" in the relative relief pattern of the county generally coincide with the areas not in the drainage districts. The difference in relief and resulting slope in these areas is such that the runoff will be more rapid and natural drainage will be sufficient to carry off the water without constructed drainage.

Figure 19 is a problemacy map recently constructed by the Champaign County Soil Conservation Service. This map indicates that the areas where drainage is considered the major problem is nearly the same as those areas already within drainage districts. From this fact it might be deducted that measures have been taken to alleviate the problems of drainage in Champaign County. An exception to this occurs along the Embarrass River where several hundreds of acres lie outside of any drainage district although the problemacy map shows the land has drainage as a major problem. This land with a slope of 0-3% is a permeable rich prairie soil and has long been subject to overflow,

FIGURE 19. PROBLEMACY MAP OF CHAMPAIGN COUNTY, ILLINOIS



SOURCE: FILES OF THE CHAMPAIGN COUNTY SOIL CONSERVATION DISTRICT, URBANA, ILLINOIS, 1950.

particularly in the lower reaches of the county stream length. However, a major portion of this land is near the head of the stream where the floodwaters recede rather rapidly, owing mainly to its position in this headwater area. Here in this area the valley is wide with gentle slopes, as shown by the profile in figure 20, in contrast to a portion of the Sangamon River Valley near Mahomet which has slopes as much as 15 per cent (figure 21). Land in this headwater area can be cultivated rather extensively, and the portions near the stream are not too steep for pasture or hay crops, figures 22 and 23.

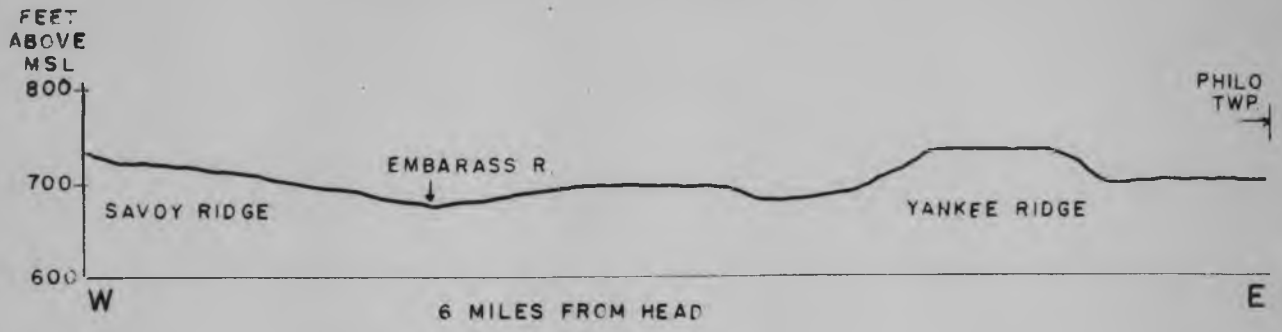
Table 3

Description of Problemacy Areas Shown in Figure 19

Area Index	Soils Description	Slope Per cent	Major Problem
9B	Rolling to steep silty "timber" soils, pervious subsoil	7-30	Erosion
19	Moderately plastic till "timber" soils, slow subsoil	3-30	Erosion
24	Generally level "prairie" soils, moderately plastic till, slow subsoil	0-3	Drainage
24A	Gently rolling "prairie" soils, moderately plastic till, slow subsoil	3-7	Erosion
25C-B	Gently rolling "prairie" soils, plastic and very plastic till	0-7	Erosion-Drainage
26A	Dark, permeable, poor to well-drained "prairie" soils, permeable subsoil	0-2	Drainage
31C	Level, permeable, "prairie" soils, permeable subsoil	0-1	Drainage
33A	Level to undulating, otherwise same as 31C, permeable subsoil	0-3	Drainage-Erosion
33B	Gently rolling permeable "prairie" soils, permeable subsoil	3-7	Erosion
33D	Level to gently rolling permeable "timber" soils	0-7	Drainage

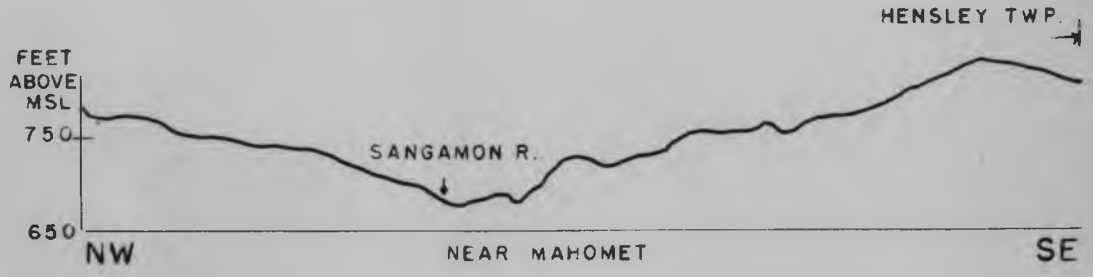
Source: Champaign County Soil Conservation District, Urbana, Illinois, 1950.

FIGURE 20. CROSS-SECTION OF THE EMBARASS RIVER VALLEY



SOURCE: U.S.G.S. URBANA QUADRANGLE

FIGURE 21. CROSS-SECTION OF THE SANGAMON RIVER VALLEY



SOURCE: U.S.G.S. MAHOMET QUADRANGLE

HORIZONTAL SCALE: 1:62500
VERTICAL SCALE: 1:2400
VERTICAL EXAGGERATION 26X

Figure 22
View Near the Headwaters of the Embarass River

Figure 23
Pastureland Near the Headwaters of the Embarass River

Construction in the Drainage Districts

The main function of the drainage district is to improve the channels of the existing streams within the district borders, construct new waterways or ditches when necessary and to lay tile laterals to stream outlets. Most of the larger drainage districts are organized for the purpose of improvement of the existing streams and for construction of new open ditches, with tiling a secondary function. A large number of the smaller districts and the sub-districts within the various main districts devote most of their work to tiling operations.

Open ditching is a rather costly effort and so is rarely done by the individual. The drainage district, with advantage of being able to proportion the costs, undertakes practically all of the open ditching projects of the county. Proper construction consists of building the ditch with a channel of sufficient width to carry off a maximum amount of runoff expected. The banks should be as sloping as possible to cut down on the degree of erosion, and the farmer should cooperate in that a rather wide strip of grassway should be left along the banks. Because there is a loss in tillable land when such practices are followed, there is always a reluctance on the part of the landowner to accept such practices. However, the subsequent saving in valuable soil and future loss of crop acreage will more than repay for the immediate loss in farming area. Maintenance of the ditches is usually in the form of clearing of silt from the channel and the removal of willows, and if left for a long period of time, the removal of small trees is necessary. Examples of some well-maintained and well-constructed ditches are shown in figures 24 to 29 in contrast with some that are not so well-kept, as shown in figures 30 and 31. Photos shown in figures 32 to 36 were taken in the fall of 1950 during dredging operations of the Salt Fork of the Vermilion River just north of Flatville. This portion of

Figure 24
Salt Fork of the Vermilion River
One Mile West of Flatville

Figure 25
Salt Fork of the Vermilion River in Section 22,
Stanton Township. Example of a wide
channel and clean banks.

Figure 26
Outlet Ditch of Flatville Drainage District, West of Flatville. This portion shows evidence of good maintenance.

Figure 27
Winter Season View of the Ditch Shown in Fig. 26.

Figure 28
Long Point Slough in Section 7, Raymond Township

Figure 29
Ditch of the Little Vermilion River Three Miles
North of Allerton

Figure 30
A Tributary Ditch of the Embarass River Within the Embarass River Mutual Drainage District. There is very slow carrying off of water in a channel weeded like this one.

Figure 31
A Portion of the West Branch of the Salt Fork, Northeast of Urbana. Willows are beginning to encroach upon the channel.

Figure 32
A Portion of the Salt Fork River Northwest of Flatville Previous to Dredging Operations in October, 1950.

Figure 33
Some of the Silt and Willows Removed From the Stream Shown in Fig. 32.

Figure 34
Some of the Vast Amounts of Sand and Gravel Taken From the Salt Fork River During Dredging Operations in October, 1950.

Figure 35
A View of the Cleaned Portion of the Salt Fork After the Silted Material Shown in Fig. 34 was Removed

the stream is maintained as a ditch in the Upper Salt Fork Drainage District and has accumulated a considerable amount of silt and willow growth.

Tiling is primarily an individual problem although many of the larger tile laterals or outlet tiles are laid by the drainage districts. As has been stated previously, the laying of tile by hand in the 1860's has largely given

Figure 36
Results of Dredging Operations Along the Salt Fork
Showing Channel and Bank Improvement

way to the use of the tile-laying machine of today which has speeded up and lessened the cost of tiling the farm. The advantages of sub-surface or tile drainage are well known, for an excess of moisture causes wet ground at plowing time in the spring, poor condition during the growing season and an uneven maturity of crop for harvest which will affect the yield and market value of the harvested crop. This is particularly true of today when the modern farmer with his mechanized equipment may be able to work all parts of his field in a fraction of the time the farmer of 1860 found it necessary to take.

Initial costs of tiling are seemingly very high but the return on the investment will in most cases more than repay this initial outlay. The tile plans in figure 37 are for a portion of the Richmond Farm located within the Owl Creek Drainage District in Brown Township and were prepared by the Champaign County Soil Conservation Service. The proposed tiling, which will adequately take care of the 82 acres in need of drainage, will cost the landowner approximately $14,000. The initial cost is high but the landowner is sure that over a long period of time the increased yield on land already cropped and extra crop return from land made available from cultivation by this drainage operation will repay him well. Figure 38 is a land capability map of the present area in need of drainage.

Efficient operation of tiling depends on the proper laying of the tile, particularly in the proper grading and in choosing the proper size of tile. One of the most common difficulties with tiling operations is that too small tile is used to carry off water when an above normal rainfall puts added strain on the tiling system. In many cases the concrete bulkheads which protect the tile outlets are in poor condition and invite erosion at that point. Some examples of good tile outlets are shown in figures 39 and 40, and a broken down bulkhead, typical of many in the county, is shown in figure 41.

Continued need for open ditching and tiling in particular is shown by a study of the graphs in figure 42 which shows a steady rise in mileage of ditches and tiling in the period 1920 to 1940. The apparent discrepancy in the year 1930 is attributed to possible errors in reporting at that time.

Significance of Rainfall

Periods of high rainfall have emphasized the need for drainage while periods of low rainfall and drouth have resulted in decreasing interest in this

FIGURE 37. PROPOSED TILE PLAN OF THE RICHMOND FARM

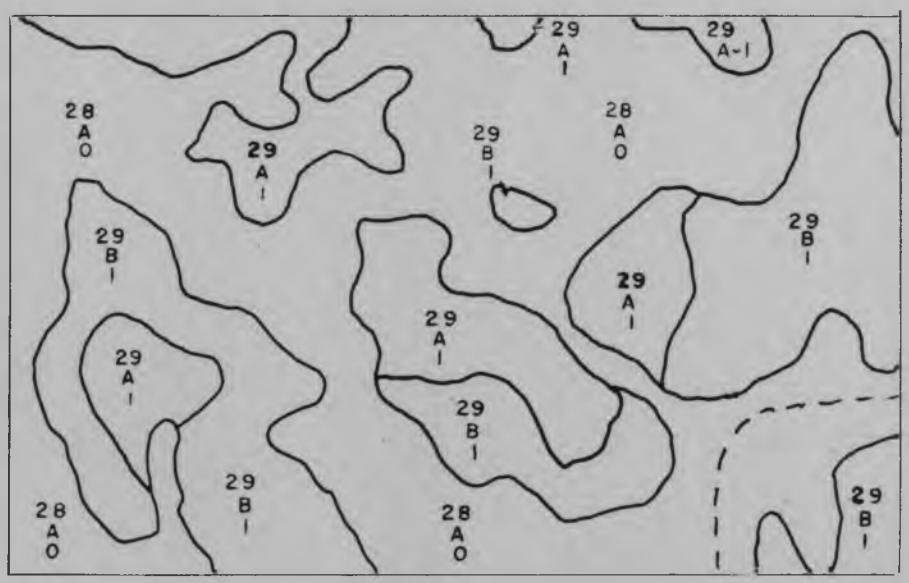
SOURCE: CHAMPAIGN COUNTY SOIL CONSERVATION DISTRICT, URBANA, ILLINOIS.

SCALE: 0 250 500 FEET

CONTOUR INTERVAL 1 FOOT

NE 1/4 AND SE 1/4, SEC. 25, T22N, R7E
CHAMPAIGN COUNTY, ILLINOIS

FIGURE 38. LAND CAPABILITY OF THE RICHMOND FARM



SCALE: 0 500 1500 FEET

KEY

28-A-0 . . . CLASS I LAND. DARK-COLORED SOIL. NEEDS TILE DRAINAGE NO EROSION.

29-A-1 . CLASS I LAND. DARK-COLORED SOIL. NEEDS TILE DRAINAGE. EROSION.

29-B-1 CLASS II LAND DARK-COLORED SOIL. NEEDS TILE DRAINAGE EROSION.

---- OPEN DITCH

SOURCE: FILES OF CHAMPAIGN COUNTY SOIL CONSERVATION DISTRICT, URBANA, ILLINOIS.

Figure 39
Tile Outlet Into a Ditch of the Long Point Slough Drainage District

Figure 40
A Tile Outlet Placed Such as This One Will Still Be Efficient in Times of High Water Level in the Ditch

type of improvement.[1] An indication this might well be true in Champaign County is shown by comparing figures 43 and 44, which are graphs of drainage district work periods and rainfall for the county respectively. The horizontal components of the work period graph represents the number of jobs or work periods as determined by data obtained from drainage engineer's reports. These points are plotted against the years in which the jobs occur. As a result the high and low points of the resulting curve fairly well follow the high and low points on the precipitation curve.

Figure 41
Broken-down Bulkhead of Tile Outlet

In areas where the ditches and tilings are well maintained there is usually less chance for frequent flooding than in areas of little or no maintenance. Since the areas within the drainage districts are considered those areas better maintained as to artificial drainage systems, it is not surprising

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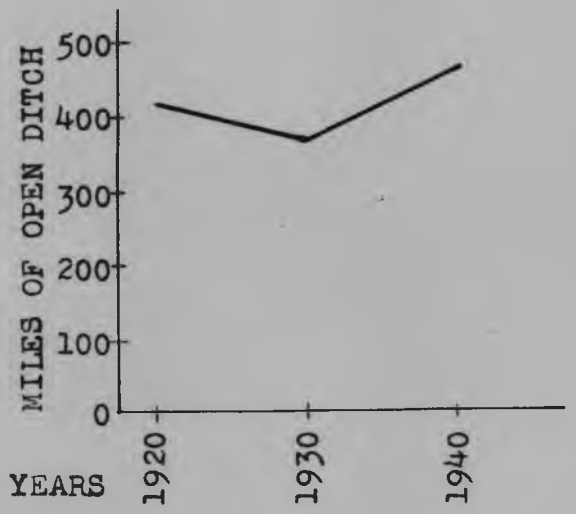
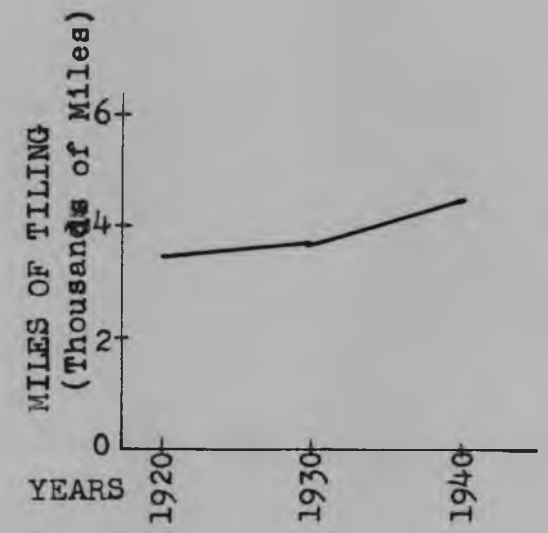
[1] E. W. Lehman, Agricultural Drainage and Water Conservation and Use in Illinois, Agricultural Engineering Department, University of Illinois, mimeographed paper, 1936, p. 8.

FIGURE 42. MILES OF OPEN DITCHING AND TILING IN DRAINAGE DISTRICTS OF CHAMPAIGN COUNTY



OPEN DITCHING

1920. . . 409 MILES
1930. . . 363 MILES
1940. . . 455 MILES

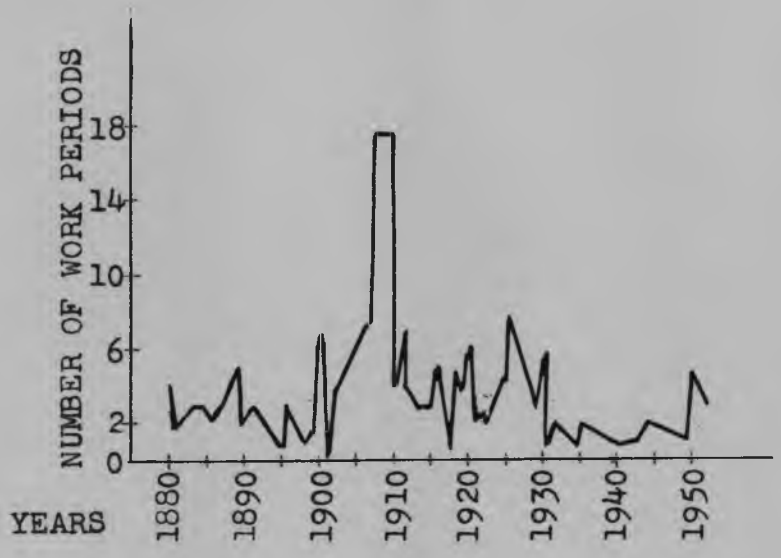


TILING

1920. . . 3507 MILES
1930. . . 3826 MILES
1940. . . 4247 MILES

Source: Drainage of Agricultural Lands, Illinois. 14th, 15th and 16th Census of the United States, 1920, 1930 and 1940.

FIGURE 43. RECORDED PERIODS OF WORK IN DRAINAGE DISTRICTS OF CHAMPAIGN COUNTY 1880-1951



Source: Engineers' Reports on Drainage Districts, Champaign County Clerk's Office.
Personal Interviews with Drainage District Officials.

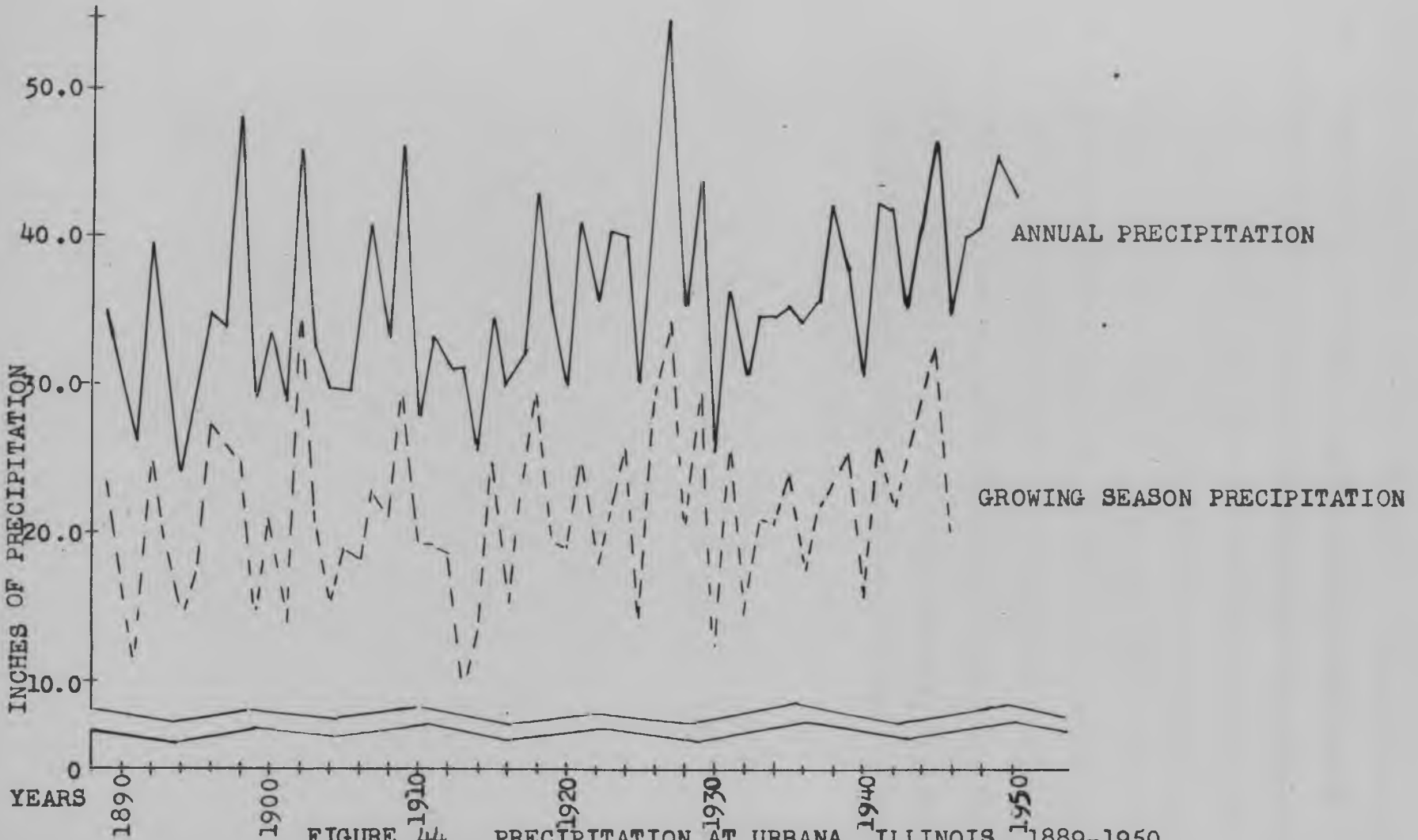


FIGURE 44. PRECIPITATION AT URBANA, ILLINOIS, 1889-1950
ANNUAL AND GROWING SEASON

Source: John L. Page, Climate of Illinois, Bulletin No.532, Agricultural Experiment Station, University of Illinois, Urbana, 1949.
Weather Summary, Meteorology Section, Illinois State Water Survey, Urbana.

that many of the floods occur in regions outside of drainage districts. For example, the rainfall of February 20, 1951 which fell before the ground was thoroughly thawed resulted in floods in many parts of the county. This inch and one-half of rain that fell within a 12-hour period flooded areas within drainage districts as well as those outside but the significant feature is that the flood crest receded more quickly in the areas where drainage district organization prevailed than in the non-district areas. Photos in figures 45 to 50 show a comparison of conditions along the Embarrass River with those along the Salt Fork river three days after the rainfall. The lack of adequate tiling to carry off the subsurface water properly and lack of clean channels in streams and ditches slows the carrying off of the water in the Embarrass area in contrast with the more rapid recedence of waters in the Salt Fork area.[1]

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[1]The Embarrass was at a higher comparative level than the Salt Fork three days previous to the heavy rainfall, indicating the difference as shown might not have been so great if each stream had been at normal level.

Figure 45
The Embarras River as Viewed Three Days After the Heavy Rainfall of February 20, 1950. Photo taken at Champaign-Douglas County line.

Figure 46
The Embarras River Under Normal Circumstances Photo taken at same location as that of Fig. 45.

Figure 47
The Salt Fork of the Vermilion River as Viewed After the Heavy Rainfall of February 20, 1951. This photo and the one shown in Fig. 45 were taken at approximately the same distance from the heads of the pictured streams.

Figure 48
The Salt Fork of the Vermilion River as Viewed Downstream From Fig. 47.

Figure 49
Where is the Channel? The Embarrass River Looking South From the County Line Bridge. This area is outside of a drainage district.

Figure 50
Wet Spots Such as This One Mean Delay in Field Work for the Farmer

CHAPTER IV

LAND USE WITHIN THE DISTRICTS

A. Development of the Land

   1. Areas of Cropland and Non-Cropland in the Drained Areas

   2. Effect of Drainage on Crop Yields

   3. Significance of Drainage to Land Values

B. Recreational Aspects of the Drainage Districts

C. Soil Conservation Measures

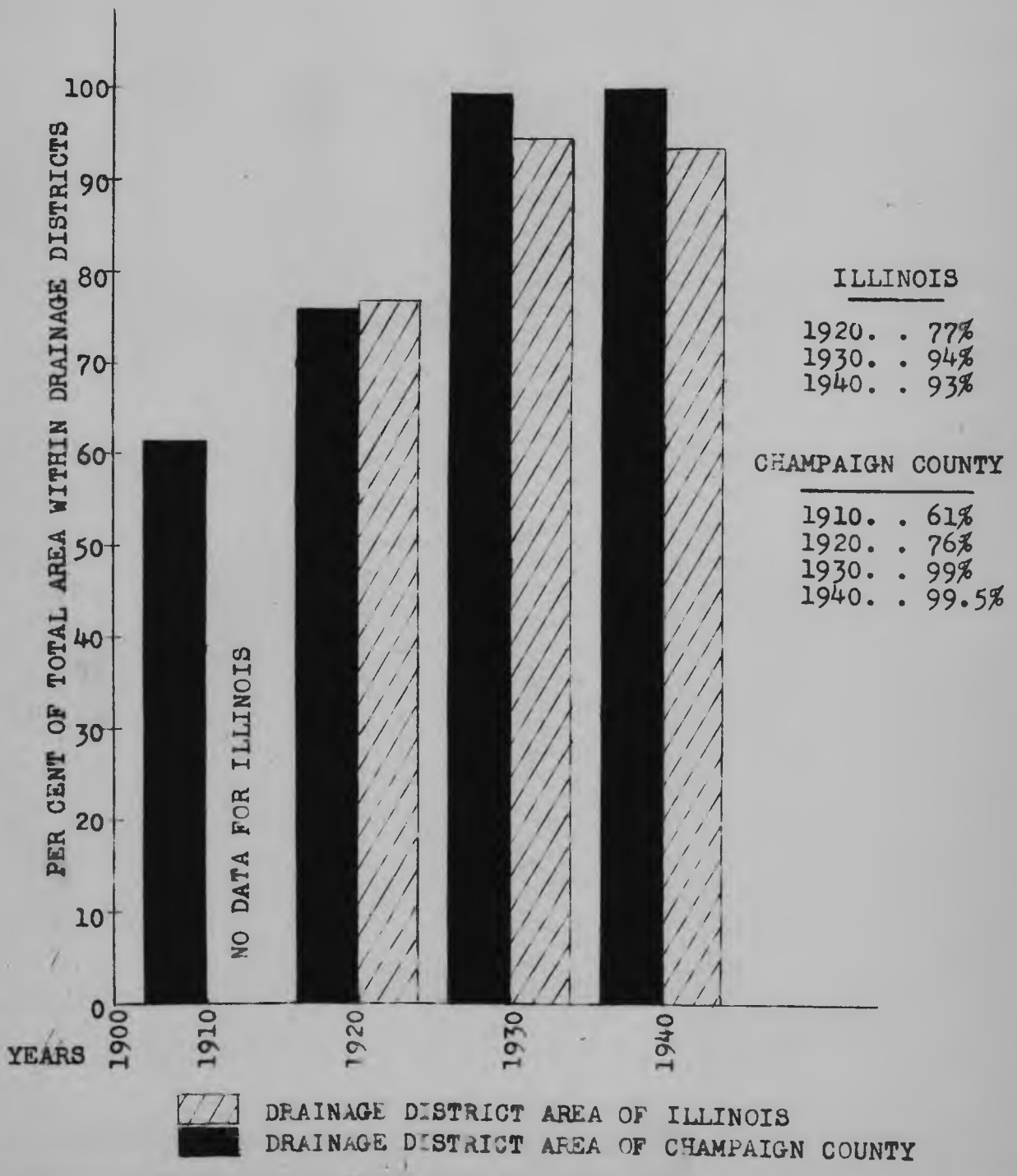
CHAPTER IV

LAND USE WITHIN THE DISTRICTS

Development of the Land

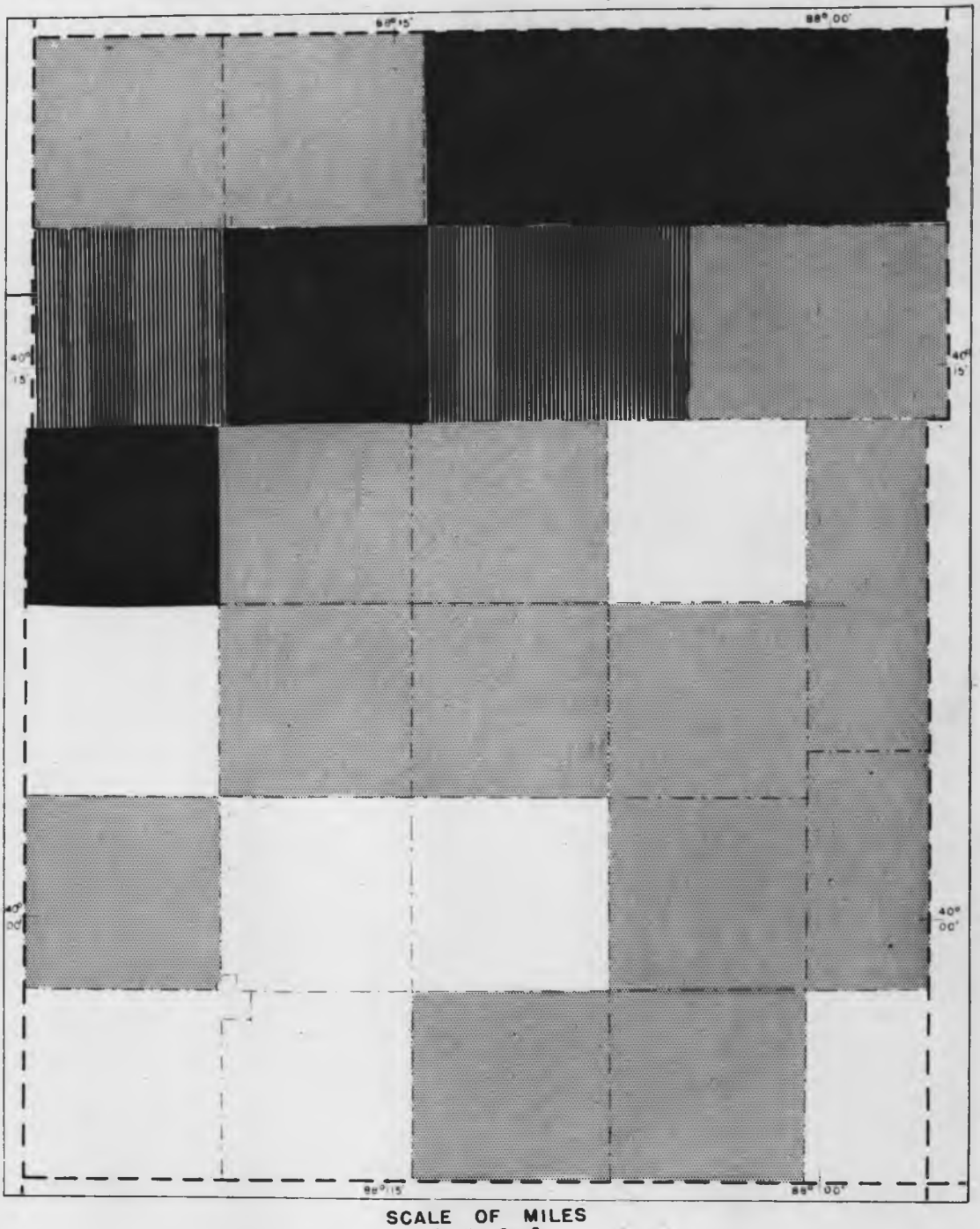
It is significant that land in the drainage districts is highly developed. The development of land within the districts and in the county in general has increased considerably as the drainage district area has increased. In 1910 there was only 61 per cent of the land in drainage enterprises listed as improved. By 1930 the portion of land within districts had risen to 99 per cent and in 1940 improved land accounted for 99.+ per cent of the total area within the enterprises. In 1940, 99 per cent of the area was good for crops according to the United States Census of Drainage figures for that year. The map in figure 52 shows cropland failure in Champaign County by townships. To superimpose on this map the map of drainage district area would indicate that in the townships with over 50 per cent of their total area within drainage districts there was only about one-half the cropland failure found in townships with less than 50 per cent of their total area within the enterprises. It is also significant that the major portion of the wasteland is in those townships having a very small percentage of their area within drainage districts, figure 53. As has been stated above, the land within the drainage enterprises is highly developed which is further exemplified by study of the map in figure 54 which was constructed by plotting cropland acreage data for each township for the period 1930-1945, and an examination of the map of drainage district area as shown in figure 16. An exception to the statement is discovered in the area near the head of the Embarrass River in Crittenden Township which has, as was explained earlier, the advantageous position of being near the headwaters of the stream and, therefore,

FIGURE 51. PER CENT OF DRAINAGE DISTRICT AREA IN IMPROVED LANDS IN CHAMPAIGN COUNTY AND IN ILLINOIS 1910-1950



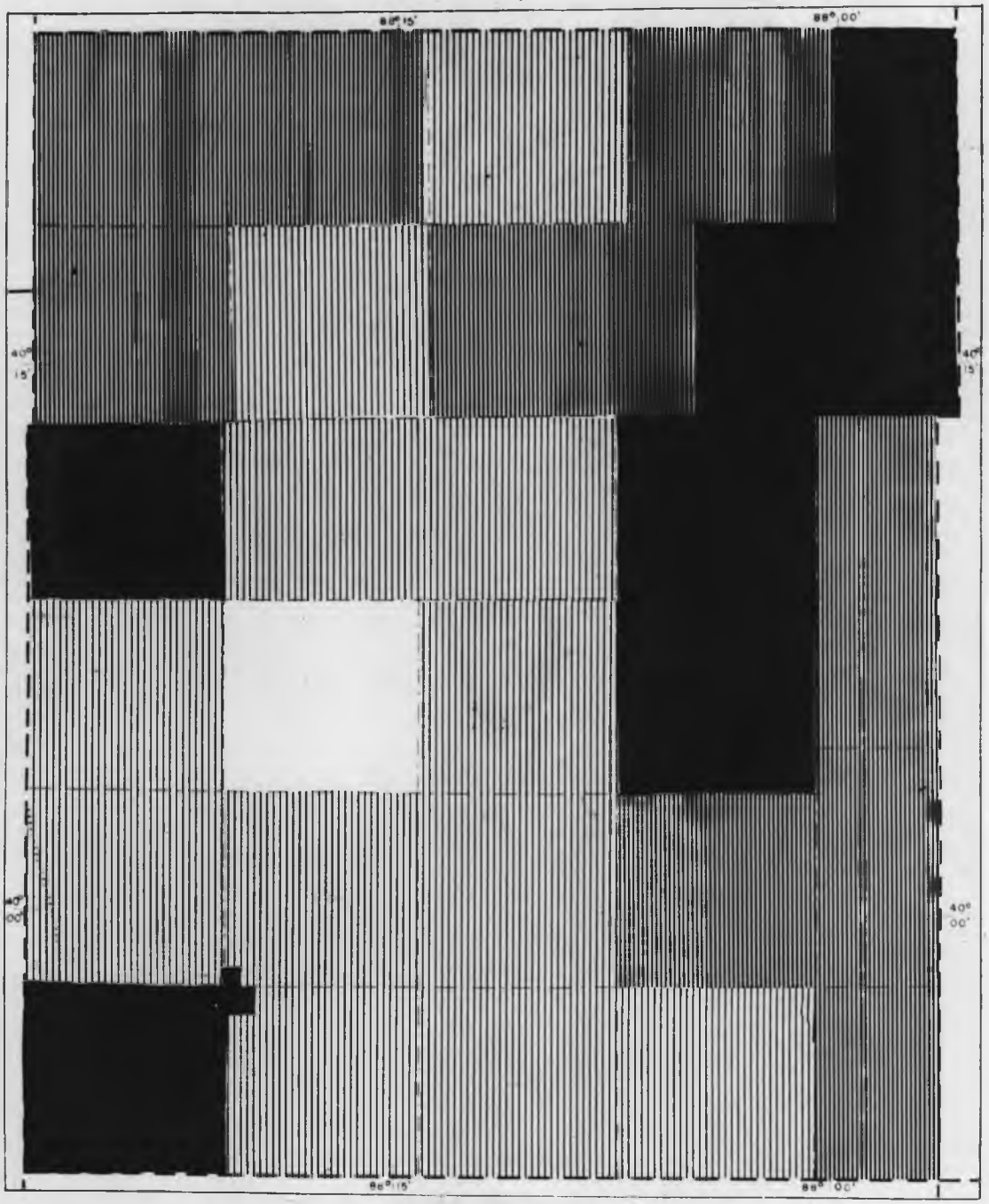
Source: Drainage of Agricultural Lands, Illinois, 14th, 15th and 16th Census of the United States, 1920, 1930 and 1940.

FIGURE 52. CROPLAND FAILURE IN CHAMPAIGN COUNTY BY TOWNSHIPS, 1930-1945.



SOURCE: APPENDIX, TABLE 9.

FIGURE 53. WASTELAND IN CHAMPAIGN COUNTY BY TOWNSHIPS, 1930-1945.



SCALE OF MILES
0 1 2 3

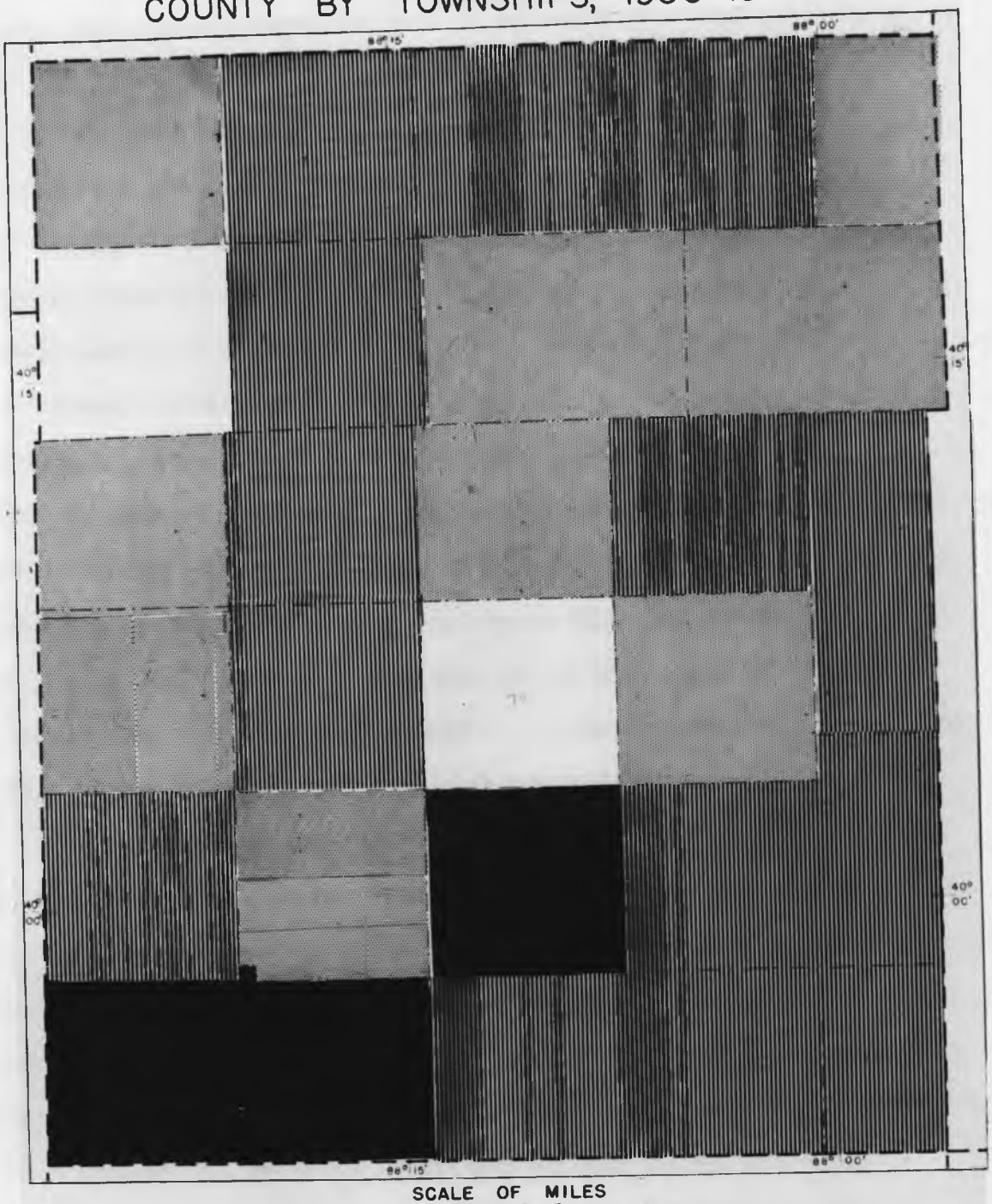
KEY

PERCENTAGE OF TOTAL AREA IN TOWNSHIP IN WASTELAND.

- 1.5 - 2.0 %
- 2.0 - 2.5 %
- 2.5 - 3.0 %
- 3.0 % AND OVER

SOURCE: APPENDIX, TABLE 9.

FIGURE 54. CROPLAND AREA IN CHAMPAIGN COUNTY BY TOWNSHIPS, 1930-1945.



SOURCE: APPENDIX, TABLE 9.

relatively safe from cropland flooding so common in the lower reaches of the stream.

It has been difficult to determine the exact increase in crop yields due to an increase in the efficiency of drainage because of many variable factors affecting agricultural production. Some of these factors are soil type differences, rainfall variances, farm management and crop diseases. However, in a study made by J. R. Tomkin[1] in 1947 of a selected number of farms in east central Illinois, it was found that by increasing the adequacy of drainage there was an increase in the yield of corn per acre of from 4 to 10 per cent and in the yield of soybeans per acre of from 2 to 3½ per cent. Another study, made by Iowa State College in Webster County, Iowa, in 1943 on 110 farms, to determine crop loss due to inadequate drainage indicated that poor drainage cost the farmers in that area a loss of 4 per cent of the total corn production and 2 per cent of the total soybean production. Inadequate drainage had made it impossible to use about 13,000 acres of cropland in the county.

Land values within the drainage district area have been relatively stable with little depreciation in value even during the depression. This has been due to the fact that the drainage districts have been successful even during the depression. The land drained has been highly productive, and the improvements have been adequate with a large percentage of the land having been developed. A study of the map in figure 55 shows the distribution of townships having a low land value average for the period from 1930 to 1945 fairly well coinciding with the distribution of the areas outside of the drainage districts. The townships having over 90 per cent of their total area within drainage districts have land

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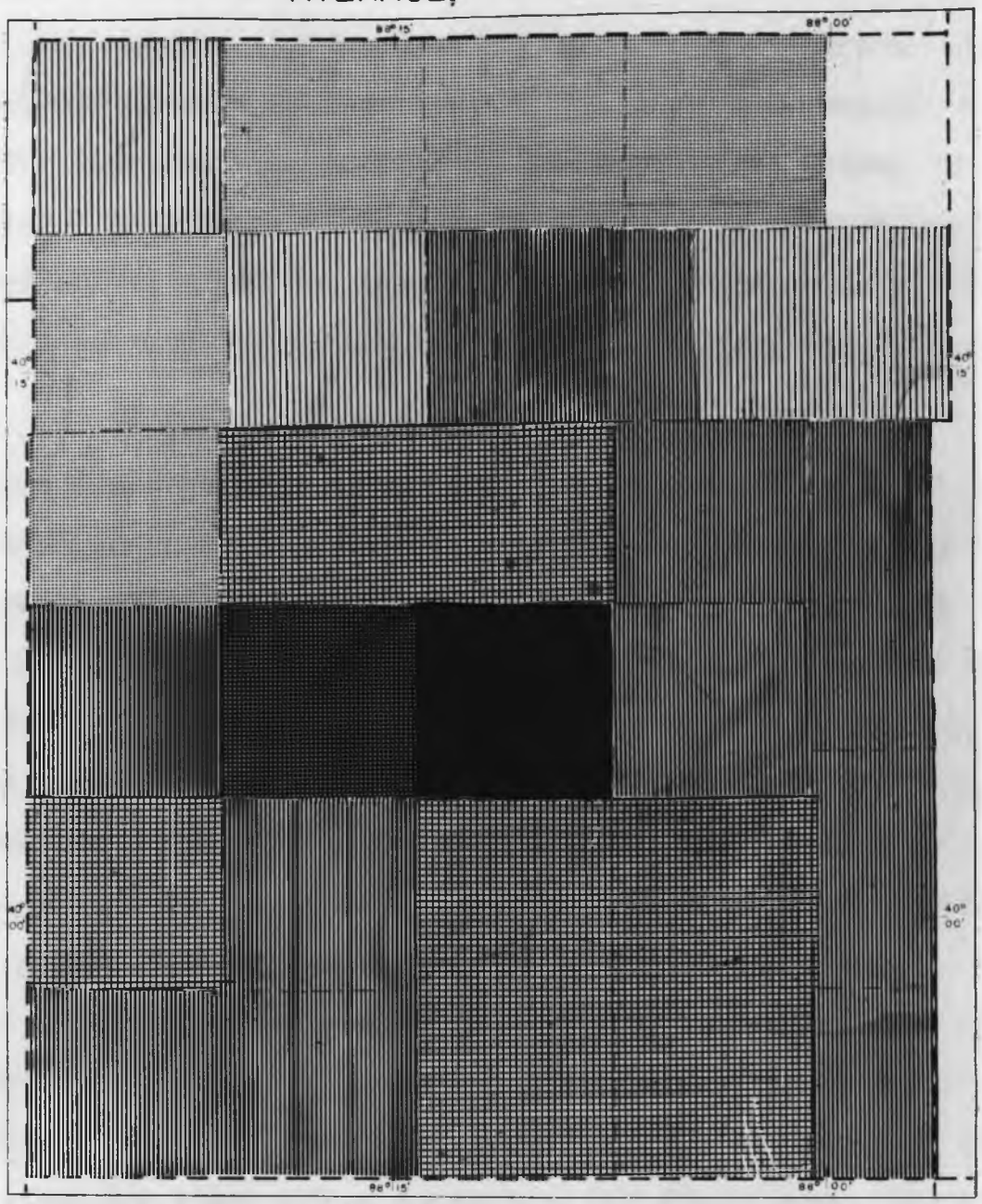
[1] J. R. Tomkin, Effect of Drainage on Crop Yields on Selected Soil Types in East Central Illinois, Master's Thesis, Farm Organization and Management, Agricultural Economics Department, University of Illinois, 1949.

FIGURE 55. CHAMPAIGN COUNTY LAND VALUES PERCENTAGE ABOVE AND BELOW THE COUNTY AVERAGE*, 1930-1945.



* AVERAGE FOR COUNTY, $161 PER ACRE.

KEY

PERCENTAGE ABOVE AND BELOW COUNTY AVERAGE LAND VALUE PER ACRE

- 25 % AND ABOVE
- 15-25 % ABOVE
- 5-15 % ABOVE
- 5 % ABOVE - 5 % BELOW
- 5-15 % BELOW
- 15-25 % BELOW
- 25 % AND BELOW

SOURCE: FILES OF DR. C. STEWART, DEPARTMENT OF AGRICULTURAL ECONOMICS, UNIVERSITY OF ILLINOIS.

values from 5 to 32 per cent above the county average for that period. At the same time, those townships that have less than 40 per cent of their area within drainage districts include the lowest average land values in the county. Here again studies from other areas indicate the importance of land drainage to the value of land. For example, in the Little River Drainage District of Missouri, land was priced at about $16 per acre on the average but after draining this land it was worth about $75 per acre, or about a 500 per cent increase in value.[1]

Recreational Aspects of the Drainage Districts

Stream and ditch banks may provide a refuge for bird and animal life or may provide the simple facilities for the pleasure of walking along the banks. Marshy land and ponds provide stopping places for ducks and geese on their northward and southward journeys. In some cases, the clearing of channels and clearing of the banks of the ditches in the drainage districts has deprived us of some of these recreational opportunities. The pioneers of the county who settled the area in the 1820's and even as late as the 1860's could tell of the many acres of swamp and slough land that served as a haven for the migrating ducks and geese as they passed over Champaign County. Largely through the efforts of drainage district organization and the resulting operations within these districts, this picture has been completely changed in the past 60 years. There have been attempts to provide the county with artificial lakes that could serve as a wild life refuge, such as the proposed Lake Mahomet area. These plans have been short-lived, however, in the face of the many objections to the loss of good farmland. Here is a conflict of ridding the lands of water to provide for valuable cropland and the flooding of the same areas for quite different purposes.

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[1] "How Drainage Raises Land Values," Literary Digest, Vol. 4 (1920), p. 9.

Soil Conservation Measures

Soil conservation or erosion control is of the utmost importance in this region of rich topsoil and high productivity. The results of the drainage district activities may deplete or help to conserve the valuable few inches of surface soil. As the additional mileage of open ditching and tiling in the county has greatly extended the natural drainage system, the result has been an increase in the volume and rate of flow of the water. This might well mean a subsequent loss of valuable soil. With good farming practices of proper rotation and cultivation which will help the water to more easily percolate through the soil and on through underground channels, much of this soil might be saved. Erosion and consequent silting of the ditch channels can be cut to a minimum by such farming methods as the maintenance of grass waterways and grass strips along the stream and ditch banks.

Top soil losses could be most significant for the county. For example, it has been figured that in a portion of the West Branch of the Salt Fork Basin, figure 54, with only slightly under normal farming practices there could be a loss of over one ton of topsoil per acre per year. This figure was obtained from Table 4, which outlines possible farming conditions found in this area. Sustained losses of soil at this rate, or at a higher rate, would soon mean vast areas of untillable soil.

Table 4

Possible Farming Conditions in West Branch Salt Fork Basin

Soil Group	33a	Per cent of Slope . . .	1½
Degree of Erosion	1	Length of Slope	400 ft.
Rotation	2-1-1	Practice	strip cropping

Source: Slope and Practice Limitations for Illinois, U.S.D.A. Pamphlet, Urbana, 1948.

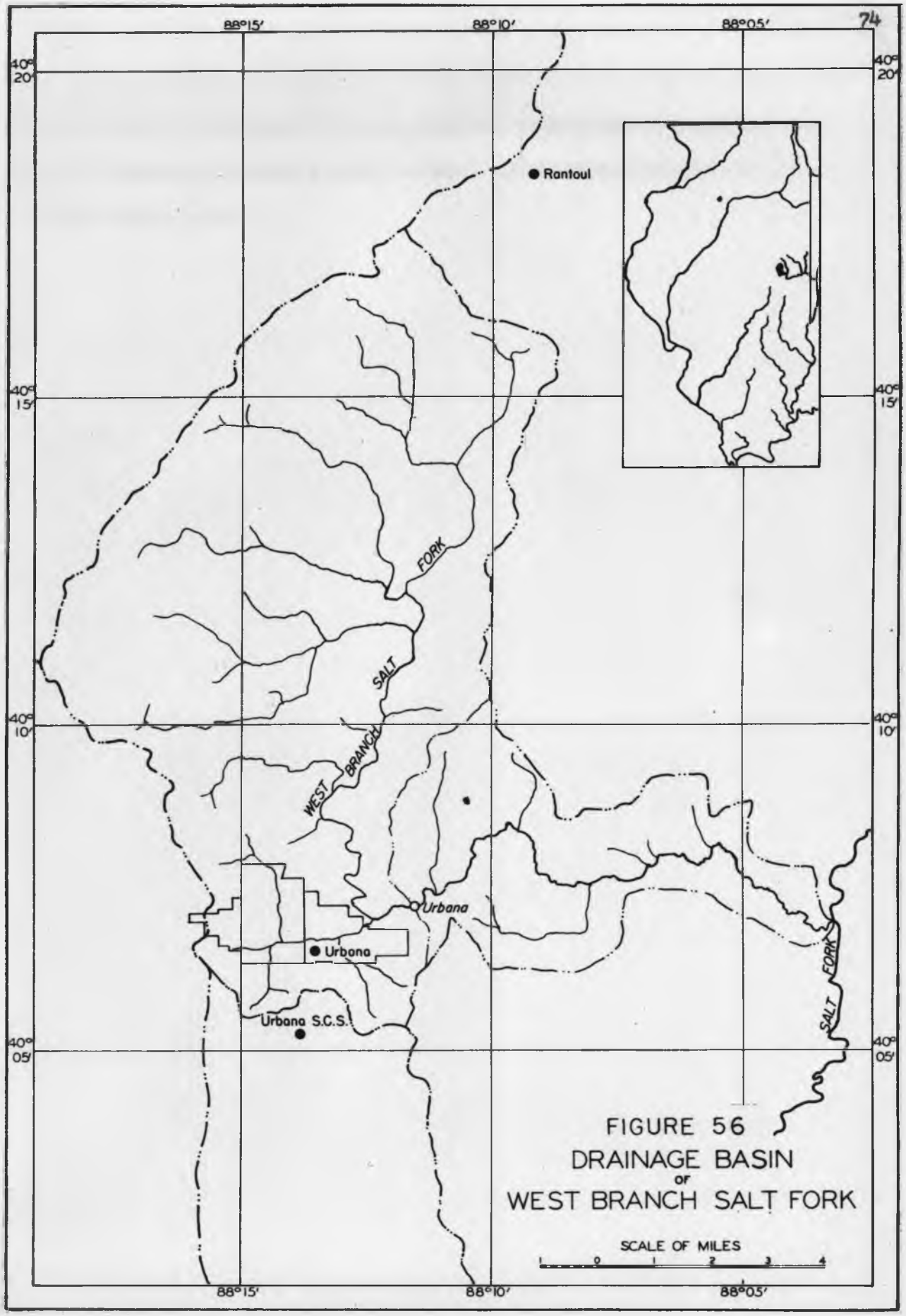

FIGURE 56
DRAINAGE BASIN
OF
WEST BRANCH SALT FORK

It is for the best interest of the landowner and of the drainage district itself to cooperate in these efforts. Good farming practices and efficient drainage systems go hand in hand. One without the other will bring most undesirable results.

CHAPTER V

CONCLUSIONS

A. The Unity or Disunity of the Region

B. Suggestions for Further Study

CHAPTER V

CONCLUSIONS

Unity or Disunity of the Region

Champaign County has long been identified as a part of the Corn Belt of the United States because of its significant character of raising corn as a predominate cash crop. The county also belongs to the Grand Prairie region because of its predominate proportion of rich, black prairie soil, developed from the prairie grasslands of pre-settlement time; it also belongs to this region because of the similarity of culture. It is these various personality traits that indicate the unity of the region in its entirety.

Since each region may have a distinct characteristic that sets it apart from the region as a whole, it would not be surprising to find Champaign possessing a single distinctive trait.

Many of the significant developments in the county have been closely associated with drainage. Most of them are interrelated. Improvement of transportation facilities developed to a large degree because of drainage development; drainage development also made these areas accessible for the development of transportation. Settlement of the land was originally confined to the areas of the county that were dry and would produce crops. As the swamp lands were drained, the farmers were able to till many acres of land that were previously worthless. The increase in the value of land was aided considerably by the factor of drainage; this drained land also was an important factor in making the adjacent lands even more valuable. The scattered areas of the county which were set apart from each other many months out of each year were brought closer together when the developments of transportation and the increase in the

ability to use the land was aided by drainage development.

Until the formation of drainage districts, the development of drainage was slow, primarily because the individual farmer could not finance a large project of drainage. After the passage of drainage legislation, drainage districts were formed rapidly and vast areas of land were properly drained. Partly as a result of this development in drainage, much of the previously idle land was made available for crops, and land already in crops produced a higher yield, resulting in an increased income for the farmer.

Today the farmers and landowners have realized good drainage pays, and most of them cooperate by adjusting their farming methods to the problems of drainage, as well as expecting the drainage organizations to make all the adjustments.

With approximately 83 per cent of the county within drainage districts today, drainage has assumed a place of major importance in the over-all activities of Champaign County. There is hardly a person in the county, whether he is a farmer or a city dweller, that does not realize the significance of drainage. The landowner may speak about his fine system of drainage before he even mentions his yield of corn or soybeans for the season.

Suggestions for Further Study

This thesis study has been made in an attempt to bring out as many of the significant relationships of drainage districts as possible. The fact that the area is large and possesses a great number of districts has made the study rather general in many respects.

It is suggested for future study it would be wise to study a single drainage district and its geographical implications. Since each district is similar in its activities to every other district, a study of the one district might reveal some important characteristics of the drainage enterprises as a whole.

Availability of time and of data must be considered. The amount of field work that is involved for an extensive study is tremendous. Records are in scattered areas of the county and adjacent counties. In some cases records have been lost or poorly kept. The data obtained is often contradictory and unreliable. It may be said, however, that Champaign County has one of the best maintained sets of drainage records of any county in Illinois.

APPENDIX

Table 5

Status of Drainage Districts of Champaign County, Illinois

No.	Name of District	Size of Districts in Acres (Champaign County)	Act of Present Organization	Original Date of Organization	Number of Subdistricts and Minor Subdistricts
1	Beaver Lake	35 936	L.A.[1]	1880	3
2	Two Mile Slough	25 758	L.A.	1887	24
3	Embarass River Special	23 272	F.D.[2]	1895	18
4	Spoon River	21 711	L.A.	1903	3
5	Fountain Head	19 670	L.A.	1905	9
6	Saline Branch	19 608	L.A.	1908	8
7	Big Slough Special	19 015	F.D.	1880	5
8	East Lake Fork Special	18 000	F.D.	1886	26
9	Little Vermilion Special	16 720	F.D.	1894	21
10	Camp Creek Special	13 400	F.D.	1906	15
11	Lotus Special	11 500	F.D.	1907	11
12	Okaw	11 348	L.A.*	1902	15
13	Wildcat Special	11 300	F.D.	1886	3
14	Kaskaskia Special	11 205	F.D.	1888	9
15	Kankakee	10 967	L.A.	1883	10
16	Upper Salt Fork	10 167	L.A.	1925	1
17	Union D. D. No. 2, Somer and Stanton T.	9 361	F.D.	1901	
18	Hillsbury Slough Special	9 188	F.D.	1898	6
19	Lower Big Slough	8 890	L.A.	1940	
20	Flatville Special	7 650	F.D.	1909	
21	Salt Fork	7 187	L.A.	1904	2
22	St. Joseph D. D. No. 3	7 148	L.A.*	1880	
23	Union D. D. No. 1, Philo and Crittenden T.	7 148	L.A.*	1889	3
24	Embarass River Mutual	7 023	F.D.	1930	
25	Pesotum Slough Special	6 068	F.D.*	1897	6
26	Lake Fork Special	6 020	F.D.	1883	4

Table 5--Continued

No.	Name of District	Size of Districts in Acres (Champaign County)	Act of Present Organization	Original Date of Organization	Number of Subdistricts and Minor Subdistricts
27	Union D. D. No. 1, T. of Ogden and Oakwood	5 771	F.D.	1880	10
28	Hensley	5 736	L.A.	1882	1
29	Long Point Slough Special	5 449	F.D.	1899	3
30	Newcomb Special	5 403	F.D.	1908	
31	Harwood and Kerr	5 357	L.A.	1925	
32	Silver Creek	5 117	L.A.	1909	
33	St. Joseph D. D. No. 4	4 699	L.A.*	1880	
34	Owl Creek	4 537	L.A.	1911	
35	Union D. D. No. 2 of the T. of South Homer and Sidney	4 381	F.D.	1893	
36	Chimney Branch Mutual	4 181	F.D.	1908	
37	Triple Fork Mutual	4 175	F.D.	1929	
38	Prairie Creek	4 000	L.A.	1941	
39	Stanton Special	3 973	F.D.	1908	1
40	Union D. D. No. 2 of the T. of St. Joseph and Ogden	3 931	L.A.*	1880	2
41	D. D. No. 1, Condit T.	3 501	F.D.	1881	5
42	D. D. No. 1 of the T. of South Homer	3 480	F.D.	1893	3
43	D. D. by User No. 1 in the T. of Pesotum	3 330	F.D.	1905	1
44	South Fork	3 197	L.A.	1903	
45	Sidlesburg Special	3 196	F.D.	1917	
46	Raup	3 086	L.A.	1926	
47	Conkey Branch Special	3 050	F.D.	1908	4
48	D. D. No. 2 of the T. of Sidney	2 900	F.D.	1908	
49	Stoney Creek	2 728	L.A.	1906	

Table 5--Continued

No.	Name of District	Size of Districts in Acres (Champaign County)	Act of Present Organization	Original Date of Organization	Number of Subdistricts and Minor Subdistricts
50	Sangamon-Drummer	2 659	L.A.	1908	1
51	Ludlow Special	2 540	F.D.	1948	2
52	Willow Brook Special	2 500	F.D.	1927	1
53	Union D. D. No. 1 of the T. of Philo and Urbana	2 488	F.D.	1907	
54	Mutual D. D. of Brown T., Fairfield, Ritchie, et al.	2 400	F.D.*	1900	
55	D. D. No. 1 of the T. of Sidney	2 320	F.D.	1898	
56	D. D. No. 1 of Somer T.	2 300	L.A.*	1950	
57	Union D. D. of Champaign County	2 293	L.A.*	1900	
58	D. D. No. 1 of the T. of Scott	2 260	F.D.	1943	
59	Union D. D. No. 1 of Philo and Sidney T.	2 235	F.D.	1903	
60	D. D. No. 1 of the T. of Stanton	2 070	F.D.*	1887	
61	Union D. D. by User No. 1 in the T. of Raymond and Murdock	2 040	F.D.	1901	
62	Union D. D. No. 1 of Newman and Murdock T.	1 960	F.D.		
63	Buck Creek Mutual	1 950	F.D.	1928	
64	Dry Fork Mutual	1 920	F.D.*	1883	
65	Kerr and Compromise Mutual	1 891	F.D.	1913	
66	West Branch	1 890	L.A.	1906	
67	Wrisk	1 777	L.A.	1904	
68	Bailey Branch	1 761	L.A.	1910	
69	D. D. No. 1 of the T. of Crittenden	1 690	F.D.	1885	
70	Youman's Branch Mutual	1 685	F.D.	1929	

Table 5--Continued

No.	Name of District	Size of Districts in Acres (Champaign County)	Act of Present Organization	Original Date of Organization	Number of Subdistricts and Minor Subdistricts
71	Union D. D. No. 1 of Newcomb and Mahomet T.	1 640	F.D.		
72	Myers Mutual	1 440	F.D.	1908	
73	Mutual D. D. of Harwood T., Watson, Claypool, et al.	1 420	F.D.*	1880	
74	Conrad-Fisher Mutual	1 410	F.D.	1930	
75	Crittenden Special	1 397	F.D.	1908	
76	Ehmen-Schmidt Mutual	1 355	F.D.	1928	
77	Union D. D. No. 1 of T. of Homsley and Condit	1 312	F.D.	1916	
78	D. D. No. 2 of the T. of Pesotum	1 270	F.D.	1911	
79	D. D. No. 10 of the T. of Ogden	1 227	F.D.	1900	
80	Big Tile Ditch Co. Mutual	1 200	F.D.	1901	
81	Union D. D. No. 1 in the T. of Scott and Champaign	1 181	F.D.	1889	
82	Union D. D. No. 3 of the T. of South Homer and Sidney	1 159	F.D.	1896	
83	Union D. D. No. 1, South Homer and Sidell T.	1 040	F.D.	1882	1
84	D. D. No. 2, Scott T.	1 030	F.D.	1890	3
85	Willow Branch	1 005	L.A.	1884	
86	D. D. No. 2 of the T. of Garrett	1 000	F.D.		
87	East Bend Mutual	960	F.D.	1888	
88	D. D. No. 8, St. Joseph T.	923	F.D.	1910	
89	Union D. D. No. 7 of the T. of St. Joseph and Ogden	851	F.D.	1909	2

Table 5--Continued

No.	Name of District	Size of Districts in Acres (Champaign County)	Act of Present Organization	Original Date of Organization	Number of Subdistricts and Minor Subdistricts
90	Schneider Mutual	850	F.D.	1925	
91	St. Joseph D. D. No. 6	827	L.A.*	1881	
92	Union D. D. by User No. 12 of T. of Tuscola and Pesotum	744	F.D.	1900	
93	D. D. No. 101 of St. Joseph T.	690	L.A.	1944	
94	Hickory Grove	680	L.A.	1920	
95	D. D. No. 11 of the T. of Ogden	648	F.D.	1901	
96	Schindler	586	L.A.	1906	
97	Hayes Branch	580	L.A.	1912	
98	Dickerson Slough	560	L.A.		
99	Stover Mutual	530	F.D.	1908	
100	Mutual D. D. of Harwood T., Clifton, Skelton, et al.	490	F.D.	1882	
101	Blackford Slough	488	L.A.	1925	
102	D. D. No. 5 of the T. of St. Joseph	410	F.D.	1881	
103	Special D. D. No. 1 of Vermilion and Champaign Counties	250	F.D.	1895	
104	Union D. D. No. 1 of Vance and Sidell T.	170	F.D.		
105	Ford and Champaign Tile	160	L.A.	1913	
106	Kilbury Mutual	60	F.D.	1924	

Table 5--Continued

No.	Name of District	Size of Districts in Acres (Champaign County)	Act of Present Organization	Original Date of Organization	Number of Subdistricts and Minor Subdistricts
107	Urbana-Champaign Sanitary District	5 503	S.A.[3]	1921	
	Total Acreage in Districts	532 073			
	Total Number of Sub-districts and Minor Subdistricts				240
	Total amount of overlapping area	26 608 acres			

*District has been reorganized

[1]Levee Act

[2]Farm Drainage Act

[3]Sanitary Act

Source: Drainage District Files, Champaign County Clerk's Office and Township Clerk's Office of Champaign County
Drainage District Organization and Finance 1879-1937, Illinois Tax Commission and WPA, 1941, pp. 82-143.
Goodell, H. E., Champaign County Report on Drainage Districts, 1934.

Table 6

Drainage Districts of Champaign County Either Dissolved or Abandoned Prior to 1951

No.	Name of District	Size of District in Acres	Date of Organization	Act of Organization
1	Big Slough and Wildcat Slough	—	—	—
2	Champaign-Douglas	530	1948	L.A.
3	City of Champaign	—	1899	—
4	D. D. No. 1 of the T. of Ogden and Oakwood	—	1880	—
5	Double Fork	—	—	—
6	East Bend Mutual No. 1	—	—	—
7	Fisher Mutual D. D.	1 410	1930	—
8	Jersey	757	1925	—
9	Kaskaskia Mutual	—	—	—
10	Lower Embarass River	—	1905	—
11	Lower Salt Fork	—	1910	—
12	Miller	—	—	—
13	Rantoul Special	—	—	—
14	St. Joseph D. D.	700	1918	—
15	South Salt Fork	—	—	—
16	South Urbana Mutual	—	—	—
17	Special D. D. No. 3 of St. Joseph and Urbana	6 000	—	—
18	Special Mutual D. D. No. 1	600	—	—

Source: Drainage District Files, Champaign County Clerk's Office. Drainage District Organization and Finance 1879-1937, Illinois Tax Commission and WPA, 1941, pp. 82-143.

Table 7

Assessments For Construction and Benefits in Drainage Districts of Champaign County, Illinois 1880-1951

Name of District	Date of Last Assessment	Accumulated Amount of Construction and Benefit Assessments
Bailey Branch	1910	$ 12 715
Beaver Lake	1948	450 041
Big Slough	1948	307 237
Big Tile Ditch Co. Mutual	1934	1 971
Blackford Slough	1946	8 564
Buck Creek Mutual	1934	1 900
Camp Creek Special	1947	78 450
City of Champaign	1899	16 000
Conkey Branch Special	1947	41 718
Conrad-Fisher Mutual	1934	6 458
Crittenden Special	1934	8 200
D. D. No. 1 in Condit T.	1934	20 293
D. D. No. 8 in St. Joseph T.	1934	2 801
D. D. No. 1 of Homer T.	no available record	
D. D. No. 1 of the T. of Crittenden	1934	33 358
D. D. No. 1 of the T. of Scott	1943	21 000
D. D. No. 1 of Sidney T.	1934	18 031
D. D. No. 1 of the T. of S. Homer	1934	25 920
D. D. No. 1 of Stanton T.	1949	10 750
D. D. No. 101 of St. Joseph T.	1945	3 185
D. D. No. 2, Scott T.	1943	8 214
D. D. No. 2 of the T. of Garrett	no available record	
D. D. No. 2 of the T. of Pesotum	1950	13 732
D. D. No. 2 of the T. of Sidney	1934	26 618
D. D. No. 5 of the T. of St. Joseph	no available record	
D. D. No. 10 of the T. of Ogden	1934	12 124
D. D. No. 11 of the T. of Ogden	1934	6 200
D. D. By User No. 1 in the T. of Pesotum	1934	28 095
Dickerson Slough	no available record	
Dillsburg Special	1943	28 217
Dry Fork Mutual	1934	15 272
East Bend Mutual	no available record	
East Lake Fork Special	1949	200 783
Ehman-Schmidt Mutual	1934	4 558
Embarrass River Mutual	1934	3 500
Embarrass River Special	1948	158 216
Flatville Special	1943	37 200
Ford and Champaign Tile	1915	14 770
Fountain Head	1946	227 418
Harwood and Kerr	1925	58 289
Hayes Branch	1912	2 256
Hensley	1934	19 901
Hickory Grove	no available record	
Hillsbury Slough Special	1949	94 934

Table 7--Continued

Name of District	Date of Last Assessment	Accumulated Amount of Construction and Benefit Assessments
*Jersey	1934	$ 5 401
Kankakee	1948	98 736
Kaskaskia Special	1950	120 112
Kerr and Compromise Mutual	1934	15 796
Killbury Mutual	no available record	
Lake Fork Special	1951	28 755
Little Vermilion Special	1950	263 930
Long Point Slough Special	1948	41 334
Lotus Special	1947	88 840
Lower Big Slough	1947	27 110
Ludlow Special	1949	21 600
Mutual D. D. of Brown T., Fairfield, Ritchie, et al.	1934	5 960
Mutual D. D. of Harwood T., Clifton, Shelton, et al.	no available record	
Mutual D. D. of Harwood T., Watson, Claypool, et al.	1934	8 520
Myers Mutual	no available record	
Newcomb Special	1949	93 110
Okaw	1948	188 791
Owl Creek	1950	28 400
Pesotum Slough Special	1950	144 697
Chimney Branch Mutual	1934	10 365
Prairie Creek	1941	19 855
Ramp	1946	20 817
*St. Joseph D. D.	1934	102 093
St. Joseph D. D. No. 3	1949	55 489
St. Joseph D. D. No. 4	1948	88 443
St. Joseph D. D. No. 6	1934	9 419
Saline Branch	1944	132 467
Salt Fork	1948	99 008
Sangamon-Drummer	1942	23 459
Schindler	1934	3 025
Schneider Mutual	1934	11 562
Silver Creek	1940	40 358
South Fork	1937	21 909
Special D. D. No. 1 of Vermilion and Champaign Counties	1908	5 000
Spoon River	1946	207 535
Stanton Special	1941	32 350
Stony Creek	no available record	
Stover Mutual	no available record	
Triple Fork Mutual	1934	7 121
Two Mile Slough	1949	238 906
Union D. D. of Champaign County	1934	28 713
Union D. D. No. 1, South Homer and Sidell T.	1934	9 000

Table 7--Continued

Name of District	Date of Last Assessment	Accumulated Amount of Construction and Benefit Assessments
Union D. D. No. 1 in the T. of Hensley and Condit	1934	3 950
Union D. D. No. 1 in the T. of Scott and Champaign	1934	3 624
Union D. D. No. 1 of Newcomb and Mahomet T.	1944	1 000
Union D. D. No. 1 of Newman and Murdock T.	1950	2 000
Union D. D. No. 1 of Philo and Crittenden T.	1944	41 185
Union D. D. No. 1 of Philo and Sidney T.	no available record	
Union D. D. No. 1 of Vance and Sidell T.	no available record	
Union D. D. No. 1 of the T. of Ogden and Oakwood	1949	37 195
Union D. D. No. 1 of the T. of Philo and Urbana	1934	9 800
Union D. D. No. 2 of Somer and Stanton T.	1934	7 590
Union D. D. No. 2 of St. Joseph and Ogden T.	1948	106 505
Union D. D. No. 2 of South Homer and Sidney	1934	26 409
Union D. D. No. 3 of the T. of South Homer and Sidney	1934	11 775
Union D. D. No. 7 of the T. of St. Joseph and Ogden	1934	2 638
Union D. D. By User No. 1 in the T. of Raymond and Murdock	1934	10 500
Union D. D. No. 12 in the T. of Tuscola and Pesotum	1934	7 000
Upper Salt Fork	1941	150 753
West Branch	1942	18 160
Wildcat Special	1949	158 545
Willow Branch	1934	5 096
Willow Branch Special	no available record	
Wrisk	1948	27 331
Tousman's Branch Mutual	1934	2 100
Total Amount of Assessments in all Drainage Districts for period 1880 to 1951		4 886 434
Urbana-Champaign Sanitary District	1950	1 684 800

*These districts are no longer active.

[1]This date represents last assessment as determined from available records.

Source: Drainage District Files, Champaign County Clerk's Office and Township Clerk's and Treasurer's Offices in Champaign County Drainage District Organization and Finance 1879-1937, Illinois Tax Commission and WPA, 1941, pp. 144-172. Goodell, W. E., Champaign Co. Report on Drainage Districts, 1934.

Table 8

Personal and Property Taxes For Champaign County, Illinois, 1900-1950
(Exclusive of Drainage Assessments)

Year	Amount*	Year	Amount*
1900	$ 900 000	1926	$ 2 822 000
1901	900 000	1927	2 990 000
1902	550 000	1928	2 815 000
1903	550 000	1929	2 990 000
1904	600 000	1930	2 990 500
1905	600 000	1931	2 725 000
1906	650 000	1932	2 635 000
1907	650 000	1933	2 363 000
1908	700 000	1934	2 702 000
1909	750 000	1935	2 522 000
1910	800 000	1936	2 679 000
1911	850 000	1937	2 684 000
1912	879 000	1938	2 610 000
1913	1 072 000	1939	2 620 000
1914	1 017 000	1940	2 693 000
1915	1 113 700	1941	2 750 000
1916	1 272 000	1942	2 672 000
1917	1 396 000	1943	2 731 000
1918	891 000	1944	2 685 000
1919	1 944 000	1945	2 725 000
1920	2 245 000	1946	3 185 000
1921	2 329 000	1947	3 665 000
1922	2 371 000	1948	4 370 000
1923	2 565 000	1949	5 020 000
1924	2 736 000	1950	5 050 000
1925	2 925 000		

*Amount of taxes figured to the nearest even thousands of dollars. Period from 1900 to 1912 and the year 1950 are estimated.

Source: Docket of Valuations, Taxes. Clerk's Office, Champaign, County.

Table 9

Cropland Area, Wasteland Area, and Cropland Failure Acreage by Townships in Champaign County, Illinois. Average Percentage for Period 1930-1945

Township	Cropland Percent of Total Area in Township	Cropland Failure Percent of Total Cropland Area	Wasteland Percent of Total Area in Township
Ayers	83.5	.52	2.50
Brown	79.0	1.42	2.76
Champaign	84.5	1.15	1.70
Colfax	84.0	1.12	2.35
Compromise	76.7	1.69	3.07
Condit	83.7	4.35	2.27
Crittenden	81.7	1.71	2.07
East Bend	80.2	1.82	2.67
Harwood	81.2	4.40	2.87
Hensley	81.2	1.75	2.47
Kerr	76.5	4.70	5.35
Ludlow	84.7	5.19	2.37
Mahomet	75.0	4.17	3.25
Newcomb	73.0	2.32	2.52
Ogden	83.2	1.84	2.50
Pesotum	87.5	.91	2.35
Philo	87.7	.76	2.10
Rantoul	78.0	2.56	2.97
Raymond	81.7	1.52	2.20
Sadorus	89.0	.96	3.50
St. Joseph	79.5	1.62	3.75
Scott	79.0	.77	2.25
Sidney	84.2	1.91	2.61
Somer	77.0	1.36	2.22
S. Homer	81.7	1.37	2.50
Stanton	81.2	.57	3.02
Tolono	75.7	.47	2.72
Urbana	73.0	1.14	2.42

Sources: U. S. Census of Agriculture Statistics, 1930, 1935, 1940, 1945. Office Files of Dr. C. E. Stewart, Agricultural Economics Department, University of Illinois.

Table 10

Average Relative Relief of Champaign County

Average Relative Relief in Feet	Area in Acres	Percent of Total Area in County
Less than - 29	55 222	9
30 - 69	341 312	52
70 - 109	130 589	20
110 - 149	115 414	18
150 and over	9 163	1
County Totals	640 000	100

Source: U. S. G. S. Quadrangles, Nos. 118, 119, 120, 146, 147, 148. Relfe's Contour Map of Champaign County.

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Personal Interviews

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Appleton, Mr. J. Attorney at Law, University Avenue, Urbana, Illinois.

Barker, Mrs. Nannie. Town Clerk of Scott Township, Bondville, Illinois.

Bond, Mr. W. Champaign County Farm Bureau, Champaign, Illinois.

Case, Dr. H. C. M. Professor of Agricultural Economics and Head of Agricultural Economics Department, University of Illinois, Urbana.

Dobbins, Mr. Donald V. Attorney at Law, Dobbins, Dobbins and Fraker, Attorneys and Counselors, First National Bank Building, Champaign, Illinois.

Ehmen, Mr. W. Town Clerk of Stanton Township, R. R. 1, Urbana, Illinois.

Fisher, Mr. Robert F. Champaign County Superintendent of Highways, Urbana, Illinois.

Freeman, Mr. Carl. Champaign County Highway Office, Urbana, Illinois.

Preese, Mr. Lee. Treasurer of Drainage District No. 1 of Ogden and Oakwood Townships. Ogden, Illinois.

Goodell, Mr. H. E. Civil Engineer, Hill Street, Champaign, Illinois.

Goodell, Mr. W. F. Representative of State Division of Waterways, Mumford Hall, University of Illinois, Urbana.

Hannah, Professor Harold W. Professor of Agricultural Law, Agricultural Economics Department, University of Illinois, Urbana.

Harland, Mr. M. Soil Scientist, Champaign County Soil Conservation District, Urbana, Illinois.

Harper, Mr. T. R. Civil Engineer, Harper and Howe Drainage Company, Seymour, Illinois.

Hartmann, Mr. W. Drainage Commissioner of Pesotum Slough Drainage District, Pesotum, Illinois.

Hay, Professor R. C. Professor of Soil Conservation, Agricultural Engineering Department, University of Illinois, Urbana.

Jones, Mr. Gomer. Champaign County Highway Office, Urbana, Illinois.

Lehmann, Professor E. W. Professor of Agricultural Engineering and Head of Agricultural Engineering Department, University of Illinois, Urbana.

Mitchell, Mr. William. Hydraulic Engineer, United States Geological Survey, Neil Street, Champaign, Illinois.

Muirheid, Mr. Benjamin. Instructor of Agricultural Engineering, Agricultural Engineering Department, University of Illinois, Urbana.

Porterfield, Mr. R. Philo Township farmer. R. R., Philo, Illinois.

Samson, Mr. W. Soil Conservationist, Champaign County Soil Conservation District, Urbana, Illinois.

Stewart, Dr. Charles. Professor of Agricultural Economics, Agricultural Economics Department, University of Illinois, Urbana.

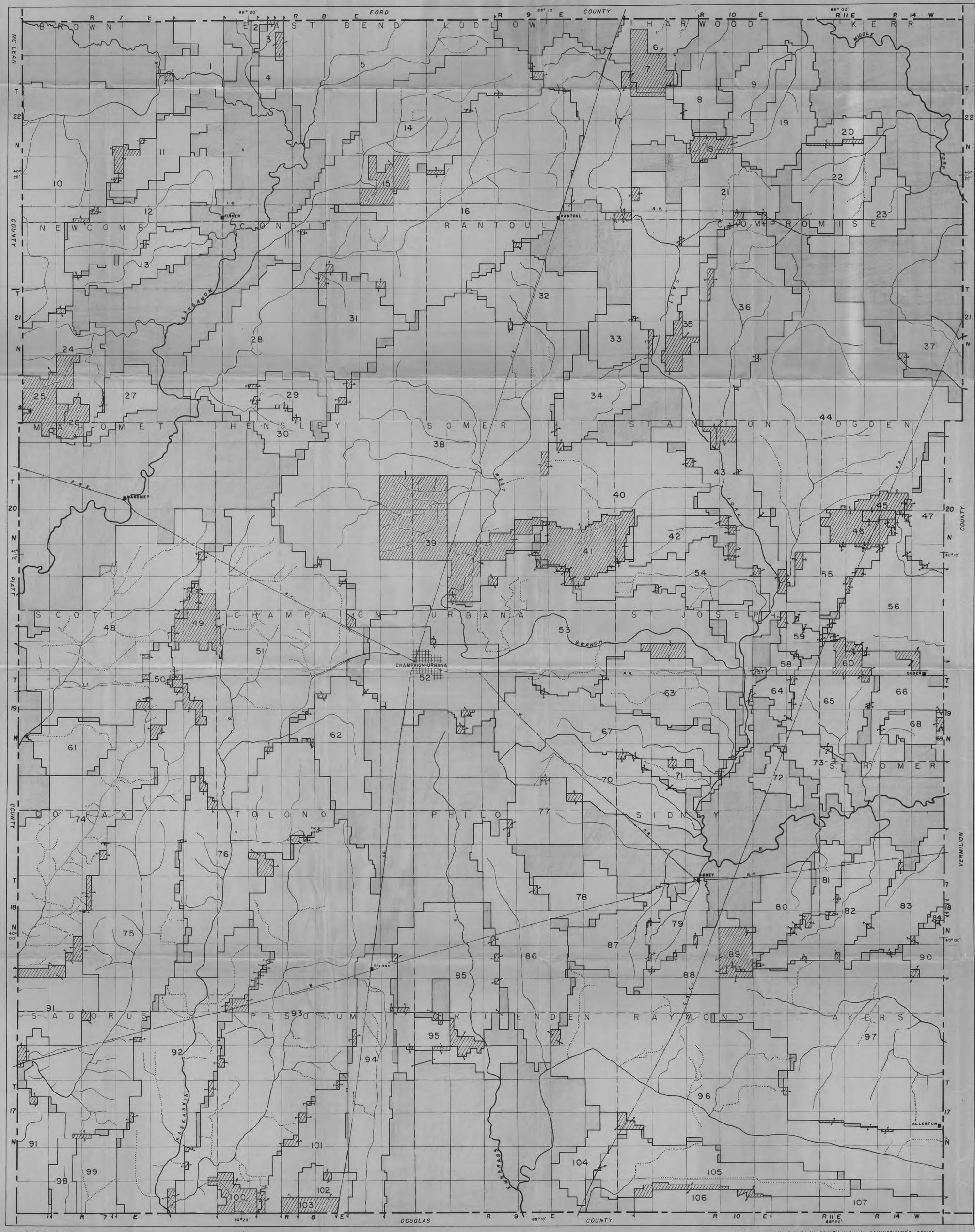
Illinois State Water Survey Personnel, Urbana, Illinois.

Champaign County Clerk's Office Personnel, Urbana, Illinois.

FIGURE 57.

DRAINAGE DISTRICTS OF CHAMPAIGN COUNTY, ILLINOIS

...WITH MAJOR STREAMS, OPEN DITCHES AND LARGER TILING OF COUNTY...



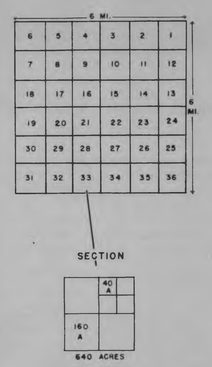
DRAINAGE DISTRICTS

(Numbered from left to right and from upper to lower portions of map)

1 SANGAMON-DRUMMER D.D.
2 FORD AND CHAMPAIGN TILE D.D.
3 BLACKFORD SLOUGH D.D.
4 DICKERSON SLOUGH D.D.
5 HILLSBURY SLOUGH SPECIAL D.D.
6 LUDLOW SPECIAL D.D.
7 BIG TILE DITCH CO. MUTUAL D.D.
8 MUTUAL D.D. OF HARWOOD T. (WATSON, CLAYPOOL ET AL)
9 WEST BRANCH D.D.
10 LOTUS SPECIAL D.D.
11 MUTUAL D.D. OF BROWN T. (FAIRFIELD, RITCHIE ET AL)
12 OWL CREEK D.D.
13 WILLOW BROOK SPECIAL D.D.
14 WILDCAT SPECIAL D.D.
15 EAST BEND MUTUAL D.D.
16 BIG SLOUGH D.D.
17 SALT FORK D.D.
18 MUTUAL D.D. OF HARWOOD T. (CLIFTON, SHELTON ET AL)
19 PRAIRIE CREEK D.D.
20 SCHNEIDER MUTUAL D.D.
21 DILLSBURG SPECIAL D.D.
22 HARWOOD AND KERR D.D.
23 KERR AND COMPROMISE MUTUAL D.D.
24 NEWCOMB SPECIAL D.D.
25 MYERS MUTUAL D.D.
26 STOVER MUTUAL D.D.
27 UNION D.D. NO. 1 OF NEWCOMB AND MAHOMET T.
28 LOWER BIG SLOUGH D.D.
29 CONRAD-FISHER MUTUAL D.D.
30 UNION D.D. NO. 1 IN T. OF HENSLEY AND CONDIT
31 D.D. NO. 1 IN CONDIT T.
32 TRIPLE FORK MUTUAL D.D.
33 YOUMAN'S BRANCH MUTUAL D.D.
34 RAUP D.D.
35 EHMAN-SCHMIDT MUTUAL D.D.
36 FLATVILLE SPECIAL D.D.
37 BUCK CREEK MUTUAL D.D.
38 BEAVER LAKE D.D.
39 HENSLEY D.D.
40 UNION D.D. NO. 2 OF SOMER AND STANTON T.
41 D.D. NO. 1 OF SOMER T.
42 D.D. NO. 1 OF STANTON T.
43 UPPER SALT FORK D.D.
44 SPOON RIVER D.D.
45 D.D. NO. 11 OF T. OF OGDEN
46 D.D. NO. 10 OF T. OF OGDEN
47 STONY CREEK D.D.
48 CAMP CREEK SPECIAL D.D.
49 UNION D.D. NO. 1 IN T. OF SCOTT AND CHAMPAIGN
50 D.D. NO. 2 IN SCOTT T.
51 FOUNTAIN HEAD D.D.
52 URBANA-CHAMPAIGN SANITARY D.
53 SALINE BRANCH D.D.
54 STANTON SPECIAL D.D.
55 UNION D.D. OF CHAMPAIGN COUNTY
56 UNION D.D. 1 OF T. OF OGDEN AND OAKWOOD
57 KILLBURY MUTUAL D.D.
58 D.D. NO. 5 OF T. OF ST. JOSEPH
59 UNION D.D. NO. 7 OF T. OF ST. JOSEPH AND OGDEN
60 HICKORY GROVE D.D.
61 D.D. NO. 1 OF T. OF SCOTT
62 PHINNEY BRANCH MUTUAL D.D.
63 ST. JOSEPH D.D. NO. 4
64 ST. JOSEPH D.D. NO. 6
65 UNION D.D. NO. 2 OF ST. JOSEPH AND OGDEN T.
66 CONKEY BRANCH SPECIAL D.D.
67 ST. JOSEPH D.D. NO. 3
68 WILLOW BRANCH D.D.
69 SPECIAL D.D. NO. 1 OF VERMILION AND CHAMPAIGN
70 SILVER CREEK D.D.
71 D.D. NO. 101 OF ST. JOSEPH T.
72 D.D. NO. 8 IN ST. JOSEPH T.
73 BAILEY BRANCH D.D.
74 KANKAKEE D.D.
75 EAST LAKE FORK SPECIAL D.D.
76 KASKASKIA SPECIAL D.D.
77 UNION D.D. NO. 1 OF T. OF PHILO AND URBANA
78 UNION D.D. NO. 1 OF PHILO AND SIDNEY T.
79 WRISK D.D.
80 D.D. NO. 1 OF T. OF SIDNEY
81 UNION D.D. NO. 3 OF T. OF SOUTH HOMER AND SIDNEY
82 UNION D.D. NO. 2 OF T. OF SOUTH HOMER AND SIDNEY
83 D.D. NO. 1 OF T. OF SOUTH HOMER
84 UNION D.D. NO. 1 OF VANCE AND SIDELL T.
85 EMBARASS RIVER MUTUAL D.D.
86 UNION D.D. NO. 1 OF PHILO AND CRITTENDEN T
87 SOUTH FORK D.D.
88 D.D. NO. 2 OF T. OF SIDNEY
89 SCHINDLER D.D.
90 UNION D.D. NO. 1 OF SOUTH HOMER AND SIDELL T.
91 LAKE FORK SPECIAL D.D.
92 OKAW D.D.
93 TWO-MILE SLOUGH D.D.
94 PESOTUM SLOUGH SPECIAL D.D.
95 CRITTENDEN SPECIAL D.D.
96 EMBARASS RIVER SPECIAL D.D.
97 LITTLE VERMILION SPECIAL D.D.
98 D.D. NO. 2 OF T. OF GARRETT
99 DRY FORK MUTUAL D.D.
100 UNION D.D. BY USER NO. 12 IN T. OF TUSCOLA AND PESOTUM
101 UNION D.D. BY USER NO. 1 IN T. OF PESOTUM
102 D.D. NO. 2 OF T. OF PESOTUM
103 HAYES BRANCH D.D.
104 D.D. NO. 1 OF T. OF CRITTENDEN
105 LONG POINT SLOUGH SPECIAL D.D.
106 UNION D.D. BY USER NO. 1 IN T. OF RAYMOND AND MURDOCK
107 UNION D.D. NO. 1 OF T. OF NEWMAN AND MURDOCK

...D.D. IS ABBREVIATION FOR DRAINAGE DISTRICT
...T IS ABBREVIATION FOR TOWNSHIP (TOWN)

SURVEYOR'S TOWNSHIP



SOURCE OF DATA: DRAINAGE DISTRICT FILES OF CHAMPAIGN COUNTY, CLERK'S OFFICE
DRAINAGE DISTRICT FILES OF DOUGLAS, FORD, PIATT AND VERMILION COUNTIES, CLERKS' OFFICES
DRAINAGE DISTRICT FILES OF TOWN CLERKS OF CHAMPAIGN COUNTY
DRAINAGE DISTRICT FILES OF DRAINAGE ENGINEERS, DRAINAGE COMMISSIONERS, AND LAWYERS OF CHAMPAIGN COUNTY
DRAINAGE DISTRICT MAPS OF CHAMPAIGN COUNTY HIGHWAY COMMISSIONER'S OFFICE
FEDERAL LAND BANK DRAINAGE DISTRICT MAP OF 1934
STREAMS OF CHAMPAIGN COUNTY MAP, CHAMPAIGN COUNTY REGIONAL PLANNING COMMISSION

-SCALE- 1 0 1 2 3 MILES

BASE MAP: FROM CHAMPAIGN COUNTY HIGHWAY COMMISSIONER'S OFFICE

LEGEND

48 — DRAINAGE DISTRICT BOUNDARY

1 — OVERLAP AREA

AREA NOT IN DRAINAGE DISTRICT

MAJOR STREAMS AND OPEN DITCHES

TILING

TOWNS

RAILROADS

COUNTY BOUNDARY LINE

CIVIL TOWNSHIP BOUNDARY LINE

SURVEYOR'S TOWNSHIP AND SECTION LINES

NOTE

...NUMBER INDEXES OF DRAINAGE DISTRICTS ARE LOCATED AT THE CENTER OF THE DISTRICT AREA
...EXCEPT FOR PORTIONS OF THE IDENTIFIED MAJOR STREAMS ALL STREAMS SHOWN ARE MAINTAINED AS DITCHES
...TILING AS SHOWN REPRESENTS ONLY A PART OF THE COUNTY TOTAL. THE DATA WERE TAKEN FROM THOSE REPORTS AND VARIOUS SOURCES AVAILABLE

COMPILED AND DRAWN BY: GEORGE F. BEATTY
GEOGRAPHY DEPARTMENT
UNIVERSITY OF ILLINOIS, APRIL, 1951